THE

DENTAL *Digest*

MAY 1945

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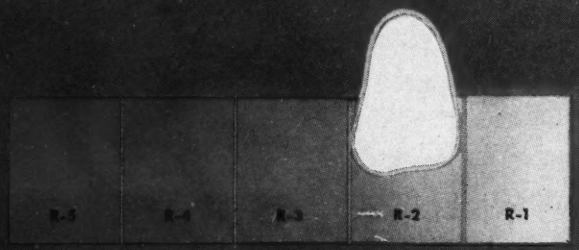

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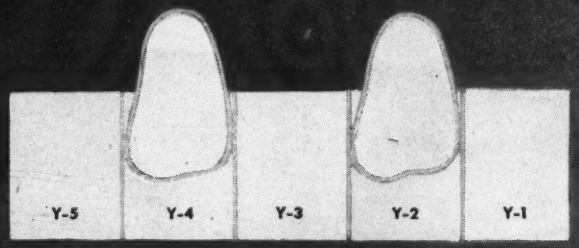

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THE DENTAL Digest

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DELOS CARL PREHN, D.D.S. (University of Illinois, College of Dentistry, 1921) stresses oral surgery in his general practice. Doctor Prehn discusses the precautions necessary, the technique of injection, and the advantages of PENTOTHAL SODIUM ANESTHESIA IN DENTISTRY.

MARION DANIEL SLAUGHTER, D.D.S. (University of Michigan, College of Dentistry, 1922) is in general practice. Doctor Slaughter describes his variations in denture design to produce better speech performance.

GEORGE G. INGHAM, D.D.S. (Baylor University, College of Dentistry) confines his practice to exodontia and oral surgery. Doctor Ingham describes an improved step-by-step technique for EXTRA-ORAL PIN FIXATION IN REDUCING MANDIBULAR FRACTURES with the Haynes-Griffin splint.

ELSIE GERLACH, D.D.S. (University of Pennsylvania, Thomas W. Evans Dental Institute, 1925) is Superintendent of the Children's Clinic and Associate Professor of Operative Dentistry at the University of Illinois, College of Dentistry. Doctor Gerlach presents the individual techniques for cavity preparation and restoration of carious deciduous teeth.

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Pentothal Sodium Anesthesia in Dentistry

DELOS C. PREHN, D.D.S., Wausau, Wisconsin

Intravenous pentothal sodium anesthesia has proved ideal for oral surgical procedures. The necessary precautions, the technique of injection, and the advantages of the anesthetic, are discussed.

FOR THE LAST two years I have used pentothal sodium anesthesia for over two hundred oral surgery patients, and have found it an ideal general anesthetic. Only three patients had minor untoward reactions: One had a slight headache for one day, and another complained of dizziness for two days. The third patient became slightly cyanotic, but after oxygen was administered the operation was finished with good anesthesia.

Precautions

1. Pentothal sodium solutions are *not* stable. For this reason only freshly prepared solutions should be used and a solution that is not absolutely clear must not be used.

2. Pentothal sodium is to be used only if the patient is a good anesthetic risk and only for operative procedures in which anesthesia for 5 to 20 minutes is required.

3. The initial injection should under no circumstances exceed 4 to 6 cubic centimeters of 2½ per cent solution given in 15 seconds. A pause of not less than 30 seconds is necessary before any additional

Fig. 1—Four syringes ready for use. Each syringe contains 1 gram of pentothal sodium in 40 cc. of sterile, chemically pure water. The ampules of pentothal sodium and sterile water, before mixing, are shown in the nurse's hand.

Fig. 2—Everything is in readiness before the patient is admitted into the operating room. Note the gas machine placed conveniently for emergency oxygen administration.

Fig. 3—Patient on operating table with the needle in the left median basilic vein in the antecubital fossa. Note a small quantity of blood already aspirated into the syringe to make certain that the needle has entered the vein.

Fig. 4—Patient has received 4 cc. of the solution in 15 seconds. A large gauze sponge is placed in the posterior part of the mouth, with the tongue brought forward below the sponge to aid breathing. The patient is now ready for surgery.
Fig. 5—Only the surgeon and the nurse are near the field of operation. No anesthetic mask nor mouth props are necessary, and the anesthetist stands away from the operative field.

Fig. 6—Surgery completed. The patient recovers rapidly, has no ill effects from the anesthetic. The picture was taken 5 minutes after surgery was completed.

smaller injections are made.

Patient Preparation

1. The patient is admitted to the hospital the night before surgery is to be done, and 1½ grains of nembutal are given. An additional 1½ grains of nembutal are given about an hour before the anesthesia.

2. It is preferred that the patient have an empty stomach at the time of operation.

3. The airway must be patent inasmuch as the respiration may be depressed. Pentothal sodium does not abolish the pharyngeal reflex; therefore, it is important that no fluid or other foreign body enter the oral pharynx. This would cause the respiration to stop and the patient to become cyanotic.

Technique of Injection

1. The patient is placed on the operating table with the left arm extended on a board fitted to the table.

2. The field of operation is made ready over the median basilic vein in the left antecubital fossa.

3. The solution of pentothal sodium is prepared by mixing 40 cubic centimeters of distilled sterile water with an ampule of pentothal sodium to make a 2½ per cent solution. A 1¼-inch 20-gauge needle is used for making the injection.

4. Insert the needle in the vein; aspirate a small amount of blood into the syringe to make certain that the needle has entered the vein.

5. The patient is asked to count slowly during the injection, about one count per second. About 4 to 6 cubic centimeters of 2½ per cent solution are injected in about 15 seconds. The injection is then stopped to permit the complete effect to take place. This usually requires 30 seconds, at which time the patient ceases to count. If the patient is not completely anesthetized at this time, inject 2 cubic centimeters more.

6. The oral cavity is made ready: The tongue is pulled forward; a large gauze sponge is placed in the posterior mouth area; and the part of the mouth anterior to the sponge is swabbed with an antiseptic.

7. The surgeon has a clear field in which to operate; no anesthetic mask nor an anesthetist is in his way; and mouth props are not necessary.

Comments

There are advantages in intravenous anesthesia from the standpoint of both the surgeon and the anesthetist as well as the patient. Less nursing care is required because of the rapid recovery. The patient can be dismissed the day following the operation, to report at the office for postoperative care.

I have removed unerupted impacted third molars, extracted teeth, placed immediate dentures, removed tumors and bone processes, and set jaw fractures under pentothal sodium anesthesia with extremely satisfactory results.

Mueller Building.

Speech Correction in Full Denture Prosthesis

M. D. SLAUGHTER, D.D.S., Mount Pleasant, Michigan

Good speech is as important an aim in denture prosthesis as are esthetics and mechanics. The tongue, lips, teeth, gingiva, and the hard and soft palates, are involved in speech production, and can be trained to improve speech. Dentures can be designed to produce better speech performance by the design of the palatal surface which aids in air volume control.

DENTURE PROSTHESIS has attained its present state of excellence through concentration of the profession on the study of articulation and mechanical procedures. Esthetics has had some attention but most dentists have been more concerned with the materials and mechanics involved. Most efforts have been directed first to solving the problems of mandibular movement, and second to positioning the teeth to secure esthetics. Only of late has the principle of speech correction been applied in denture prosthesis.

It is the purpose of this paper to call attention to the third objective in full denture prosthesis, distinct speech, which is just as important as either esthetics or mechanical efficiency. Good speech is recognized universally today as an economic, social, and cultural asset of the first importance. Nevertheless, the problem of defective speech grows more acute daily in patients with dentures. The following speech defects contribute to the lowering of our national speech standards: Nasal sounds; harsh, unpleasant tones; slovenly, indistinct articulation of sound units; lisping; mouthing; and faulty enunciation caused by poorly formed dentures.

Organs of Speech

Speech *noises* are nonmusical sounds of language originating in the irregular vibrations of air volumes in the mouth known as "air blades."

Fig. 1—CH *as in* **choke.**

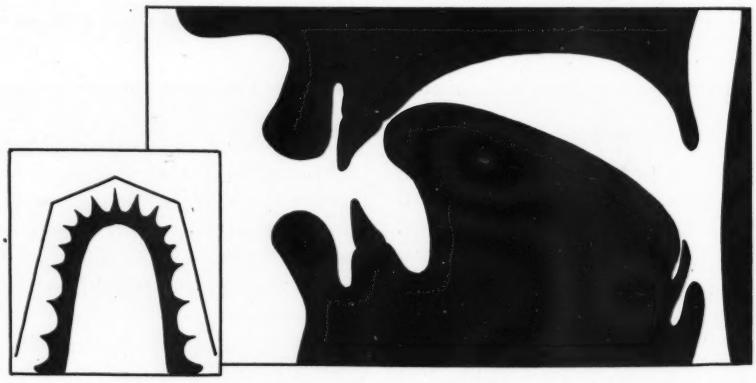

Fig. 2—J *as in* **joke.**

Fig. 3—R *as in* **roar.**

These are to be sharply differentiated from speech *tones*, the musical sounds which have their origin in the vocal cords. The organs concerned in speech production are the tongue, lips, teeth, gingiva, and the hard and soft palates. The tongue, the most important, is the organ of speech chiefly concerned with modifications of sound with syllables and words, and exerts the most decided influence on the design of the dentures.

The tongue is, as a rule, a rather adaptable organ. Defective speech often results when a patient first acquires a full denture, however, because of the inability of the tongue to change in muscular coordination. When the natural teeth are present and the tongue is passive, it occupies the cavity surrounded by the teeth and the hard palate. The tongue lies higher than many operators have observed, the posterior third being in actual contact most of the time with the hard palate and part of the soft palate.

The tongue is, likewise, much wider than is usually believed, and constant contact with the palate gradually widens it. It gradually widens ½ inch in the posterior third from the age of twenty to the age of forty. *The width of the posterior third of the tongue in the average patient determines the degree of speech success;* the wider the tongue, the more difficult the speech. Some patients have been observed to have the posterior third of the tongue flattened. No records are available to this effect but it is possible that the constant pronouncing of guttural speech noises, as in speaking German or Hebrew, may cause a widening of this part of the tongue.

The speech organs may be compared to a musical instrument—the trombone. The vibrations in the mouthpiece produce different sounds because of the air volume control which takes place when the sliding of the tube shortens or lengthens the air volume. Likewise the speech organs control the air volume from the vocal cords to make speech language sounds. The tongue may be compared to the trombone slide inasmuch as it

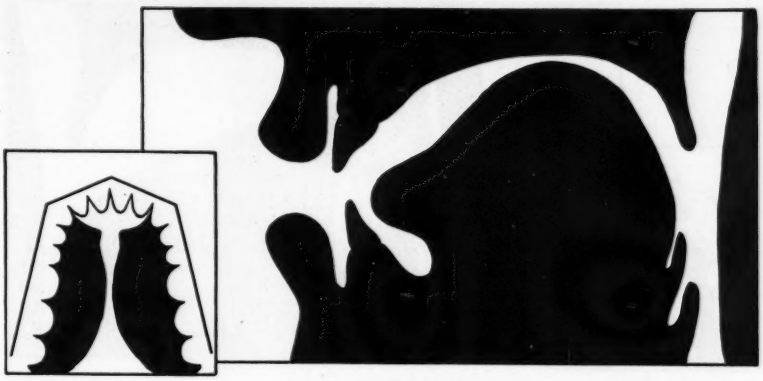

Fig. 4—Y *as in* your.

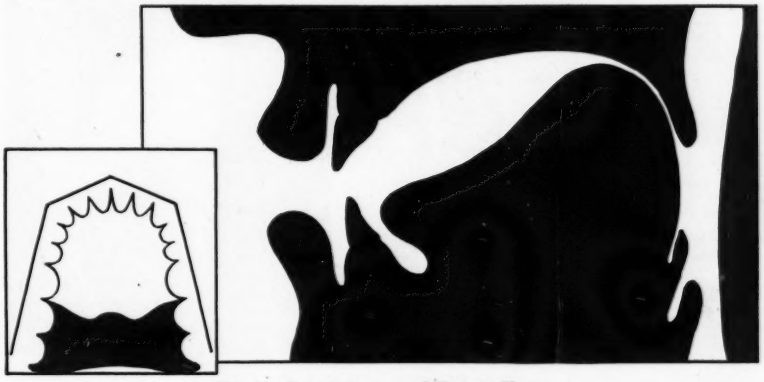

Fig. 5—G *as in* gate, *and* K *as in* Kate.

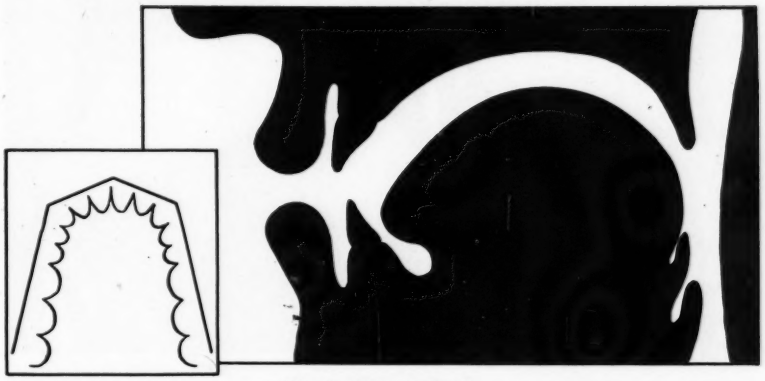

Fig. 6—OO *as in* book.

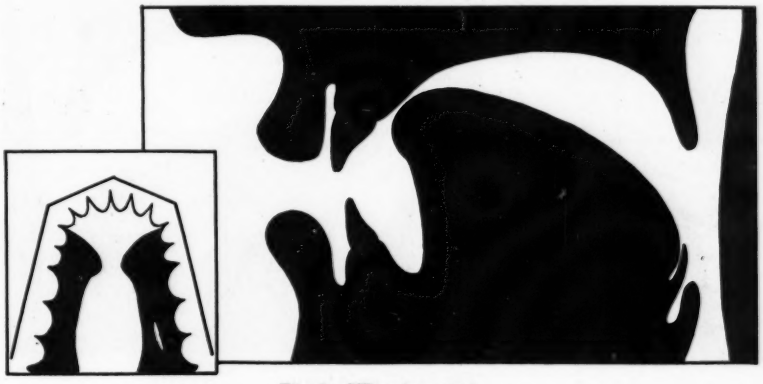

Fig. 7—SH *as in* assure.

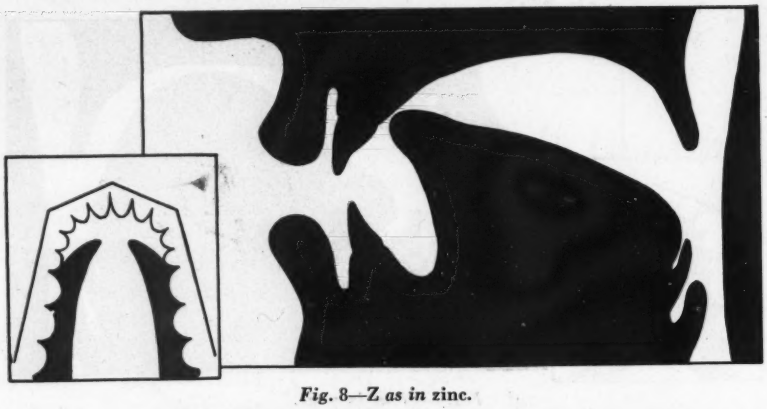

Fig. 8—Z *as in* zinc.

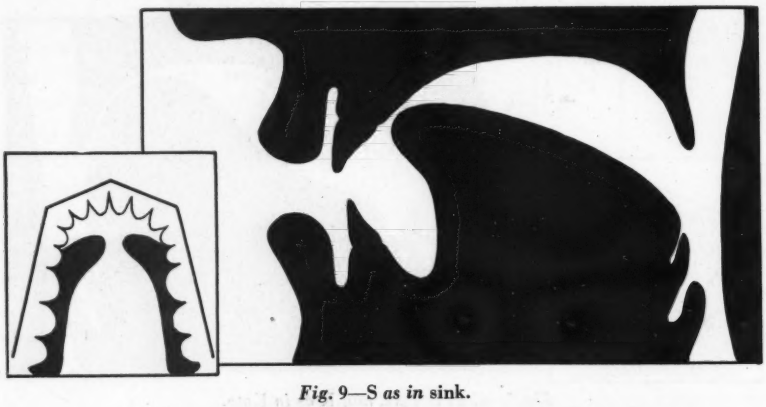

Fig. 9—S *as in* sink.

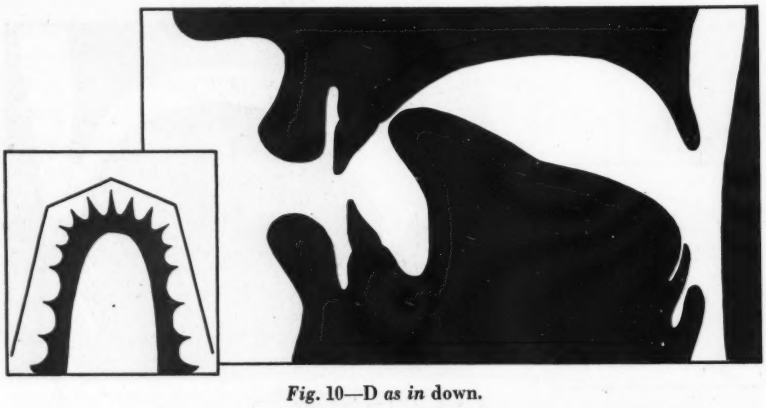

Fig. 10—D *as in* down.

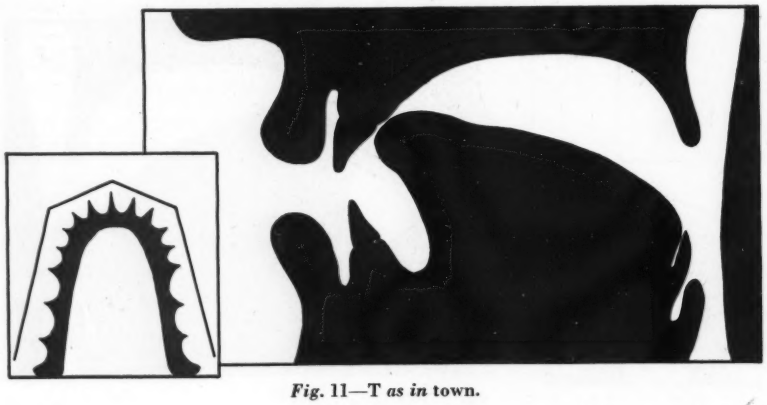

Fig. 11—T *as in* town.

is the most important controlling mechanism.

Lip tissues properly supported with formed peripheries will lend themselves in most cases to their former functions. If a person used his lips in speech before he lost his natural teeth, he will use them again if they are properly supported.

Tongue Movements

The ability to acquire new habits of speech or of mastication with full dentures is entirely lacking in some patients, even in those of high intelligence. These patients should be carefully instructed to try to develop tongue control. This can be accomplished best by practicing with vowel sounds before a face-length mirror. The patients should be cautioned against the habit of swallowing at the time or right after speech sounds are made. Swallowing then retracts the dorsal surface of the tongue below the mylohyoid ridge and flattens the lateral borders so that they tend to engage the lingual flange or even to squeeze under it, dislodging the whole lower denture. The average patient, however, learns to talk with new dentures without much difficulty.

In considering the tongue actions which might influence denture design, the most interesting speech sounds are the subtones, the linguodentals and the labiodentals. Some of the linguodentals (Figs. 1 through 12) are *th* as in thin, *l* as in lay, *t* as in tin, *d* as in do, *s* as in sin, and *z* as in zinc. The facility and clearness with which these sounds are produced depends much on the manner in which the upper anterior teeth are placed in the mouth. During the formation of the linguodental sound *th*, as in thin, the tip of the tongue touches the incisal ends of the maxillary incisors; it does not protrude beyond the labial surfaces. The tongue contact can be used to indicate the forward slope of the upper incisors. If *thin* is pronounced *tin*, the slope should be increased. Normally the tongue protrudes also. If the tongue does not touch the upper incisors in pronouncing *fourth*, the teeth are too far forward.

In some patients, speaking these words will cause an exaggerated anterior-posterior movement of the mandible. These patients have had an extreme overjet or overbite in their natural teeth. When the sounds *l*, *t*, *d*, *s*, and *z* are produced, the tip of the tongue makes contact either with the linguogingival part of the hard palate or with the linguogingival surface of the incisors. The clear formation of these linguodental speech tones will require different denture treatment.

The labiodentals *f* and *v* are usually pronounced with the lower lip touching the incisal ends of the maxillary incisors. The position of these teeth then should be modified so that the incisal edges touch the vermillion border of the lower lip when the patient says "very fine."

Fig. 12—TH *as in* then.

Denture Design

Gingival Form—Gingival tissues of the denture should be made to simulate the normal gingiva. These are carved to look as natural as possible, and rugae are supplied. It is not true that the carvings are dirt catchers; either the dentures are not properly designed or the patient is at fault in his denture cleaning habits.

Tooth Form—The lingual surface of the tooth is extremely important in denture design. Wherever possible a pinless tooth is to be used and interproximal spaces provided. Teeth with pins should be carved lingually to closely simulate natural teeth.

Palatal Form—The soft palate is treated by formed peripheries and a postdam seal. This is adapted so that the palate cannot break or be lifted off the seal during mouth movements. In palatal correction the denture base material which covers the palatal surface should be kept as thin as possible. Palatinus torus should be relieved generously. Acrylic resin does not break unless it is bent several hundred times.

The final treatment of the palatal surface of the upper denture is to place a baffle, or a ridge, 1 millimeter wide and 1 millimeter thick, curving toward the midline from the lingual cusp of the first bicuspid and reaching opposite the lingual of the first molar (Figs. 13 and 14). The baffle

Fig. 13—*Upper denture designed to produce better speech performance by the design of the palatal surface.*

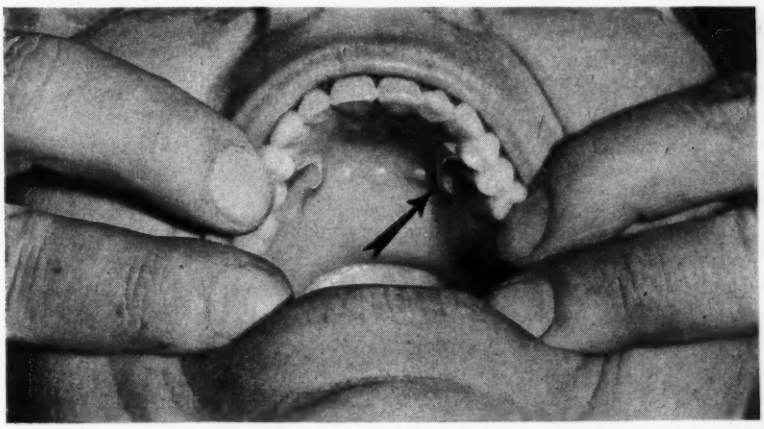

Fig. 14—*Upper denture (shown in Figure* 13*) in place.*

placed in the palate in this way enables the tongue in most of its functions to cut off and narrow the air volume as needed. This permits proper enunciation by helping the tongue to become more pointed. The center space is occupied by three dots. The exact curve and extent of the ridge is determined for the individual patient. If the palate is broad and flat, the curve will be wide; if the palate is high and vaulted, the curve will be sharp. The average denture, if so treated, can help to improve speech performance by at least 100 per cent. I have observed that denture wearers who had broad, paddle-shaped tongues developed sharp, pointed tongues within a short time. Learning to handle a smaller "air blade" will narrow the posterior part of the tongue and result in better speech performance.

Comments

Tench[1] said in 1926, "The time may come when a knowledge of tongue movement in function will be deemed quite as important in denture prosthesis as a knowledge of mandibular movements." That time has arrived.

Teachers of the deaf can produce 96 different speech sounds entirely by air volume control. Approximately fifty sounds are used by the average person. This figure dips to 15 or 20 when the person is edentulous. The average denture wearer rarely makes use of more than 30 sounds. If we can increase this number of speech sounds to 40 or even 50, we will have made a contribution equal in importance to that of the restoration of esthetics and balanced occlusion.

[1]Tench, R. W.: Interpretation and Registration of Mandibulomaxillary Relations and Their Reproduction in an Instrument, J.A.D.A., 13:1675-1693, 1926.

Maxillofacial Wounds in Forward Installations

Primary Closure

The teaching that war wounds of the face differ from those of other parts of the body in that they can be closed primarily, under certain conditions, has been sound. In this theater not one case of proved gas gangrene of a facial wound has been seen. It has also been emphasized in teaching that débridement of facial wounds should be conservative and that no bone, skin, or buccal mucosa should be removed if it has a chance of survival. The trouble encountered in closure of these wounds has been due to too enthusiastic application of both of the following principles: Facial wounds *can* be closed, and débridement should be *conservative*. Some wounds have been closed that should preferably have been left open, and others have been closed after inadequate débridement. It has been demonstrated quite definitely that, if a successful primary closure is to be accomplished, débridement must be meticulously complete.

The only complication that has been encountered in closed facial wounds has been that of localized sepsis. Spreading infections of streptococcal or staphylococcal origin have been exceedingly rare. In cases that have become septic, the wounds have opened and secondary closure has been delayed. Good results have been obtained when the fundamental surgical principles of adequate cleaning and preparation of the wound, complete hemostasis, provision of drainage when indicated, and fixation and splinting, have been applied.

Cases are seen in which great care has been exercised by some inexperienced surgeons in obtaining a fine hairline closure of a wound that has either been inadequately débrided or not provided with necessary drainage. It was not sufficiently realized by some of the younger surgeons that a better result would be obtained by preparing a wound so that healing in its entirety would be assured, rather than in doing a fine job of skin suturing aimed at obtaining simply a good cosmetic result. It should be the general rule in forward hospitals to spend more time in cleaning and preparing a wound for closure, and less time on the closure itself. Skin sutures without tension that do not necessarily result in a hairline scar but which do not leave wide suture marks are to be preferred over the time-consuming plastic closures that some surgeons have tried to accomplish.

Failure to provide adequate surgical drainage has complicated some cases otherwise well handled. Wounds of the superior maxilla involving the paranasal sinuses are found inadequately drained rather frequently. Drainage is particularly necessary if the penetrating missile has been a small one and the resulting wound itself is not large enough to provide adequate drainage. Wounds of the lower jaw with extensive comminution of the bone and little soft tissue loss are likely to flare up with infection if prophylactic drainage is not provided. The principle of leaving open the extensive wounds with loss of tissue has been practiced satisfactorily. Suture of skin to buccal mucosa in suitable cases has gained great favor and is unquestionably a good procedure.

Bony Fixation

The application of simple methods of replacing and splinting the jaws and fractured bones in the forward areas has been found, on the whole, to be quite satisfactory. This has been done by supporting bandages, or by simple intermaxillary elastic traction, and often, when indicated, by superior elastic traction to a gauze bandage or web head cap. Plaster head caps have been used, but they are gradually falling into disfavor, especially with the surgeons who receive the cases into general hospitals. In the usual case, their period of usefulness lasts only a week or ten days and this period of time can, in

(*Continued on page* 279)

Extra-Oral Pin Fixation in Reducing Mandibular Fractures: Haynes-Griffin Splint

GEORGE G. INGHAM, D.D.S., Amarillo, Texas

An improved step-by-step technique is suggested for applying the Haynes-Griffin splint to mandibular fractures, unilateral and bilateral, and the improvements that have been made directly on the appliance are presented.

MUCH HAS been written concerning extra-oral pin fixation in reducing fractures of the mandible. Most articles have shown only the good results, a few have told of the undesirable or bad results, but none has presented the postoperative roentgenograms showing the necrosis around the pins, which in most instances takes place in four or five weeks.

In many cases in which this method of fixation has been used, pins inserted either become loose and can be removed with the fingers, or are so firmly embedded in the bone that it is surprising that the pins do not break on removal. In cases of both lateral and bilateral fractures in edentulous mandibles and in those in which intermaxillary ligation or traction could not be used because of the position of the teeth, I have had good results with the Haynes-Griffin splint (Fig. 1), although considerable pin necrosis as well as infection and sequestration have taken place. In compound and compound comminuted fractures, some infection is expected. This infection could not, of course, be attributed to the insertion of the pins.

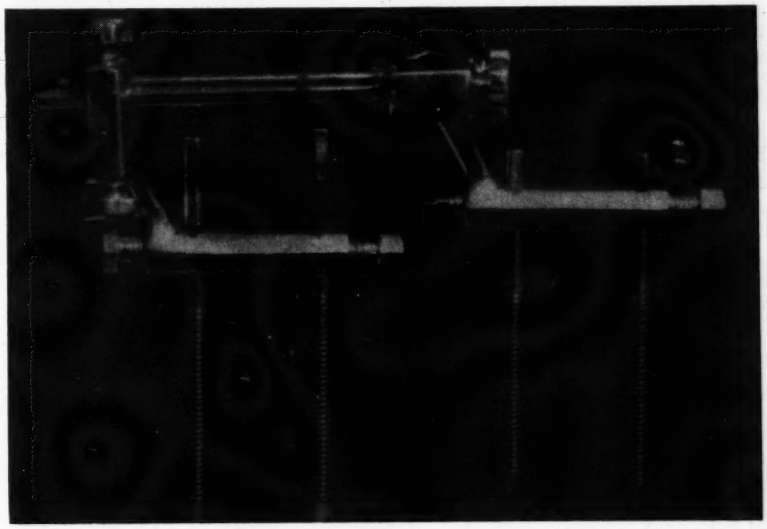

Fig. 1—Completely assembled Haynes-Griffin splints.

Usual Technique Used

Most articles and textbooks describing the insertion of pins indicate the following procedure:

1. Locate the fracture lines and the points for insertion of the pins.
2. Make an incision and separate the tissue with a blunt instrument or a hemostat until the bone is reached.
3. Insert a metal tube into the incision, and drill a hole into the bone through this tube.
4. Remove the drill and insert the first pin; then place a pier over the first pin and locate the position of the second pin.
5. The same procedure is used for pins in the opposite segment of bone.
6. Place the ball and socket bars

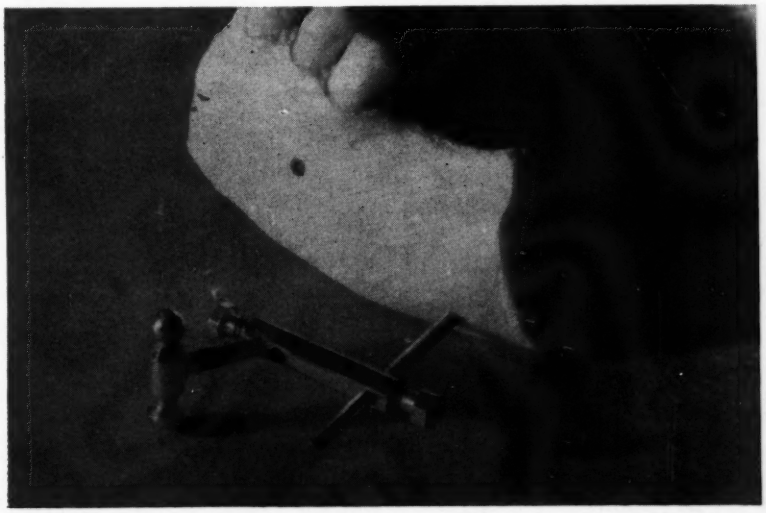

Fig. 2—First pin inserted at least ½ inch from line of fracture, in lower third of body of mandible, and extending through cortices. After pin is inserted, the pier is placed over it to establish position of second pin.

Fig. 3—Insert second pin into hole in pier, and force it through soft tissue until bone is felt; then drill the pin through the bone.

Fig. 4—Both units in place in mandible, two pins in each fragment.

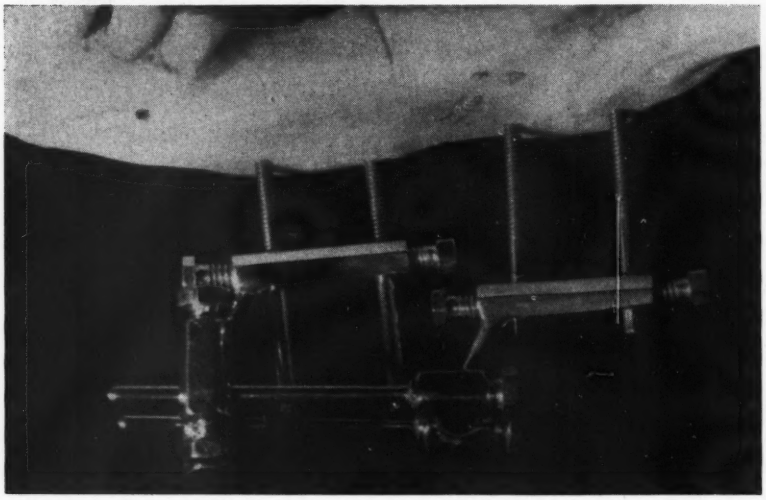

Fig. 5—Completed assembly of splints with fixation bars placed in position and ready to reduce the fracture.

on both piers, and insert the fixation bars.

7. Reduce the fracture and hold it in place by tightening the nuts on the ball and socket bars.

8. Place cotton around the pin next to the tissue where the pin was inserted, and apply collodion for a protective covering.

9. The appliance is left in place for several weeks until roentgenograms show good callus or union.

10. The ball and socket bars, fixation bars, and pins, are removed, and a dressing is applied over the pin holes.

Improved Technique

1. The Haynes-Griffin splint should be used only when conditions necessitate an appliance of this type, in edentulous mouths or where the position of the teeth will not allow intermaxillary wiring or traction or intra-oral appliances. Figures 2 through 6 show the steps in applying the splint to a fracture of the mandible.

2. Care must be exercised in determining the line of fracture and the location of points for insertion of pins.

3. Establish the first pin of each unit ½ inch from the line of fracture (Fig. 2).

4. Place the pier over this pin to establish the position of the second pin (Fig. 3). Insert the second pin into the hole in the pier, and force it through the soft tissue until bone is felt; then drill the pin through the bone.

5. Place the pins in the lower third of the body of the mandible, and extend the pins through the inside (lingual) of the mandible. If the pins are placed within the lower third of the mandible, they will not damage the floor of the mouth.

6. Figure 4 shows both units in place in the mandible, two pins in each fragment.

7. Be as sure as possible that the fragments are in the correct position before tightening the nuts on the appliance (Figs. 5 and 6).

8. Take postoperative roentgenograms to check the alinement as well

as to determine when callus or union is obtained, and to watch the progress of bone union.

9. Remove the pins as soon as union has been established.

10. Use hot saline irrigations *freely* in the mouth.

Changes in the Appliance

The appliance has been changed considerably (Fig. 7) since it was first devised. The first Haynes-Griffin splint I used had screw pins with pyramidal points which necessitated making an incision, placing a metal tube in the tissues to protect them from the drill, then drilling a hole with a Feldman bibevel drill into the bone for reception of the pins.

I was so long in applying the splint

Fig. 6

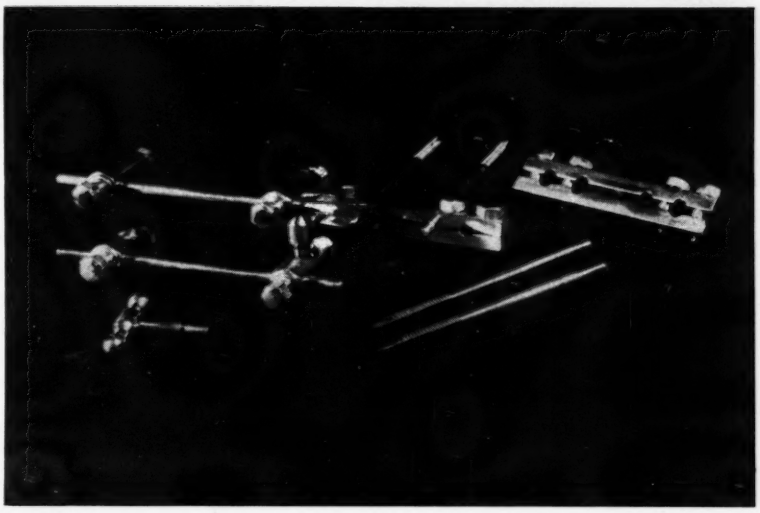

Fig. 7

Fig. 6—Bilateral fractures reduced with Haynes-Griffin splints; pins completely through lingual surface of body of mandible. (Photograph of inferior border.)

Fig. 7—New type of Haynes-Griffin splint with split pier bars. This allows much more flexibility than the old bar in which the ball bar is fixed.

Fig. 8—Right lateral roentgenogram of bilateral fracture of mandible.

Fig. 9—Left lateral roentgenogram of mandibular fractures shown in Figure 8.

Fig. 8

Fig. 9

Fig. 10

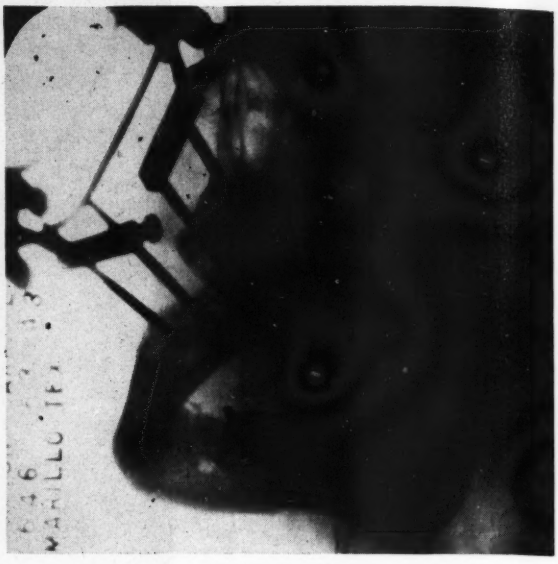

Fig. 11

Fig. 10—*Right lateral roentgenogram of same mandible with Haynes-Griffin splint applied and fracture reduced. Note the* 19-*gauge silver wire used in open reduction of left side of mandible.*
Fig. 11—*Left lateral roentgenogram of mandible shown in Figure* 10.

on the right side for the patient shown in Figures 8 through 12 that I did an open reduction on the left side using 19-gauge silver wire. The soft tissues lingually had been torn completely loose from the mandible almost as far back as the ramus. The mandible was completely denuded of soft tissue and the soft tissues were badly lacerated. With these conditions, it seemed impossible to take an impression and make an intra-oral splint. The entire operation took 1 hour and 40 minutes. This patient had only a little pain, and the next morning he demanded food. He had an uneventful recovery.

After having such difficulty in placing the pyramidal screw pins, I devised a bibevel drill on the end of the screw pin (Fig. 13). This screw pin could be inserted without making an incision and without placing a metal sheath in the tissues to protect them from the drill, and would go through the tissues until bone was contacted before drilling was necessary.

I had the new pins made up and used them in the fixation of bilateral mandibular fractures (Figs. 14 through 17). It took 22 minutes to apply the splint on the left side, and 26 minutes to apply it on the right side. The patient ate his breakfast less

Fig. 12—*Patient* 48 *hours after splint was applied. The chin plate is used for support and to produce traction because of slight opening at crest of ridge in line of fracture.*

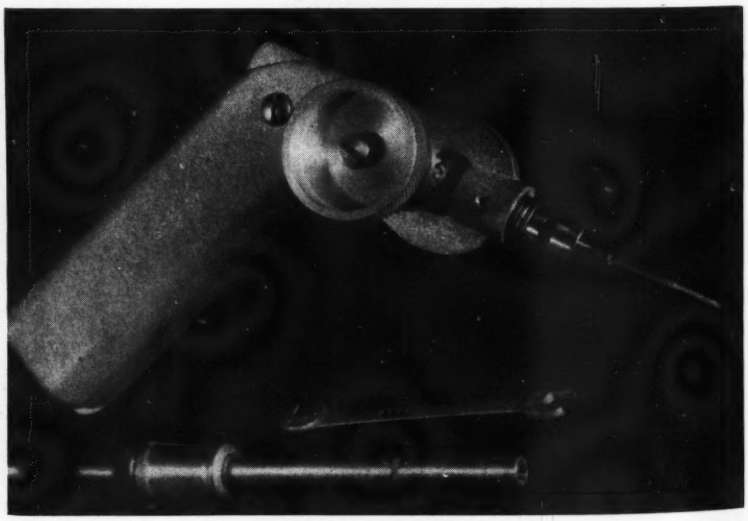

Fig. 13—*Drill and wrenches used to insert screw pins. Note sharp bibevel drill point and short threads on pin.*

Fig. 14—Patient on operating table after Haynes-Griffin splints have been applied for bilateral mandibular fractures.

than 24 hours after the operation. He had a severely infected mouth (periodontal disease and abscesses), and although some sloughing and suppuration took place the end results were pleasing and satisfactory.

As can be seen in Figure 17, dimples developed in the skin as the tissues followed the screw threads on the pins to the bone. Incisions were made around the pins with a sharp, narrow lance, and two months after removal of the pins there was no evidence of the dimples. Since then the pins have been changed so that the threads do not extend more than ½ inch on the pin, thus permitting the tissues to slide back on the smooth pin after the threads are screwed into the bone.

The greatest improvement to the Haynes-Griffin splint is the screw pin that works exactly like a metal tap for cutting threads in steel (Fig. 18). It actually taps a thread into the bone for the screw pin.

Although I have operated on numerous patients with jaw fractures, I have never had to make an incision nor to insert a metal tube for protection from the drill, and the results have been gratifying. In all the cases operated on the scars produced by the pins have been negligible and were not noticeable a few weeks after removal of the pins. In a recent operation for unilateral fracture of the mandible, application of the appliance and completion of the reduction took 20 minutes. Avertin anesthesia (rectal) was used in all cases in which the splints were applied.

Fig. 17—Patient 24 hours after application of appliance. Patient was eating 20 hours after operation.

Comments

I believe that any operator who de-

Fig. 15

Fig. 15—Left lateral roentgenogram of patient in Figure 14 with appliances in position on both sides.

Fig. 16—Right side of same patient. Note necrosis around pins. The second pin was too close to line of fracture and sloughed completely out of bone.

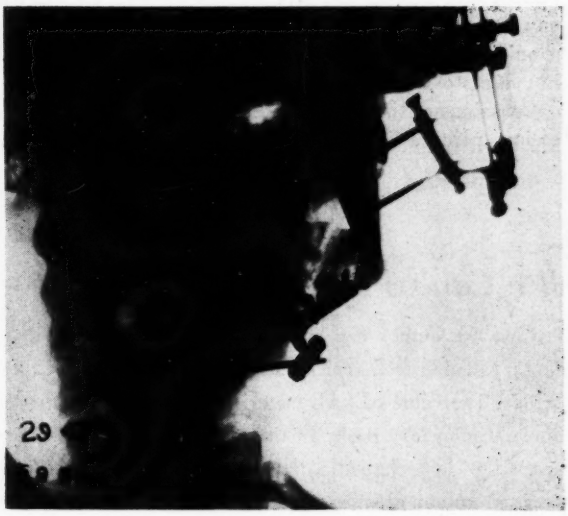

Fig. 16

cides upon this plan of treatment for a mandibular fracture should completely familiarize himself with the insertion and proper positioning of the pins, placement of the ball and socket bars and fixation bars, and the manipulation and adjustments of the splint. He can do this by practicing on two blocks of wood and a vise, applying a splint to the wood as he would to bone. If this is done several times, the operator will familiarize himself with the step-by-step technique and the manipulation and adjustments of the splint. There are certain mechanics involved in the use of the splint that one should know well before using it.

Amarillo Building.

Fig. 18—Left: Old type of pin with pyramidal point. Center and Right: New self-tapping drill points.

Medico-Dental Relationship

ALBERT E. UPSHER, A.B., M.D., Kansas City

THE FUNDAMENTAL differences in medical and dental practice are significantly obvious. The domain of medical practice demands perhaps a greater scope of information combined with advisory capacity rather than mere skillful manual dexterity. The dental profession, on the other hand, recognizes the wider scope and the more intimate relationships of medicine to the immediate life of the patient and accepts the fact that in any useful relationship medicine should be the director and the leader in matters of mutual concern.

Conscious of these facts, more far-seeing persons in the dental profession have become aware that dental education and dental practice must be made stronger in its content and in understanding of the fundamentals of medical science. In turn dental science, dental research, and dental practice, will become increasingly more learned and effective, not only in terms of practice, but so that ultimately physicians and dentists in their consultations and practical cooperation will more or less speak the medical language without the aid of an interpretor. The medical and dental relationship should include more intimacy in both hospital and dispensary as well as in private practice.

It seems clear that whatever exists in the present state of affairs to impair mutual respect, esteem, or understanding should be removed through the attention and efforts of both professional groups. The sound progress of dental medicine is one which ought to be welcomed by every thoughtful physician because it means lifting one more division of the whole practice of medicine to a more intelligent, more scientific, and more efficient basis.

—From *The Explorer*, University of Kansas City School of Dentistry, 1945.

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The Editor's Page

FOR YEARS dentists have hoped for a method of controlling dental caries by using the biologic principles of vaccination. In 1942 Canby and Bernier[1] of the Army Dental School reported their experiences with a small number of cases in which they used vaccines prepared from twenty-four strains of *Lactobacillus acidophilus* isolated from carious dentine. Following the use of these vaccines, Canby and Bernier observed a reduction in the number of lactobacilli in the mouth and a corresponding increase in the agglutinin titer in the blood. These investigators concluded their report by suggesting: "Because of the small number of cases under observation in this study, we hesitate to draw any conclusions on the basis of results obtained. It is evident, however, that further studies of this and related problems are indicated."

Williams,[2] also of the Army Dental Corps, has recently reported his experiences in the attempt to immunize human beings with oral lactobacilli. He used thirty-three subjects, twenty for an experimental group and thirteen for controls. The experimental group received heat-killed and living vaccines prepared from lactobacilli. The vaccines were given by subcutaneous inoculations once each week for four weeks. Before, during, and after the inoculations, all persons were bled and the sera tested for agglutinins. Likewise salivary samples were taken and counts were made for lactobacilli four weeks preceding immunization, during the inoculation, and for an eight-week postinoculation period. Williams summarizes his experiments as follows:

"1. Subcutaneous inoculation of human beings with both heat-killed and living vaccines, containing the strains of lactobacilli used in these tests, was accomplished four times at weekly intervals without inciting any severe local or general detrimental effects.

"2. Vaccination increased the blood agglutinin titers for the strains used in the vaccines, the maximum being attained around two weeks after vaccination. The titers decreased after this period and were near the unvaccinated levels five months after the last injections. Controls showed no appreciable change in titer.

"3. Salivary counts for lactobacilli over a period of four months demonstrated that fifteen out of twenty persons (75 per cent) in the immunized group had apparent reductions in average salivary counts. Statistical analysis indicated that only five out of the twenty (25 per cent) could be regarded as having reductions greater than could be accounted for by chance. The average counts for lactobacilli in the controls showed changes which were within the limits of chance variation.

"4. The average agglutinin titer levels were about the same for both sections of the immunized group, one with reductions in average counts within the limits of chance variation. No relationships could be established between the blood agglutinins and the changes in average counts.

"5. The results seem to indicate that the immunization, as performed in this study, had no consistent effect on the numbers of lactobacilli cultivable from the oral cavity."

There is nothing to suggest from Williams' work that increased agglutinin titers, as resulting from vaccination, had any long term effect on the lactobacilli counts. Nor did the vaccination seem to confer a serologic immunity of any significant duration. Despite these results there are other possibilities, within the field of immunology, in which we may find some lead to dental caries control. With refinements in biologic techniques it is quite conceivable that some careful investigator may discover the nature of the protective principle and the inhibitory element present in the blood or saliva of caries-free people. Investigators engaged in studies in the fundamental biologic fields should receive adequate financial support and encouragement.

[1]Canby, C. P., and Bernier, J. L.: Bacteriologic and Immunologic Studies in Dental Caries, J.A.D.A., 29:606-617 (April) 1942.
[2]Williams, N. B.: Immunization of Human Beings with Oral Lactobacilli, J. D. Research, 23:403-411 (December) 1944.

Fig. 1

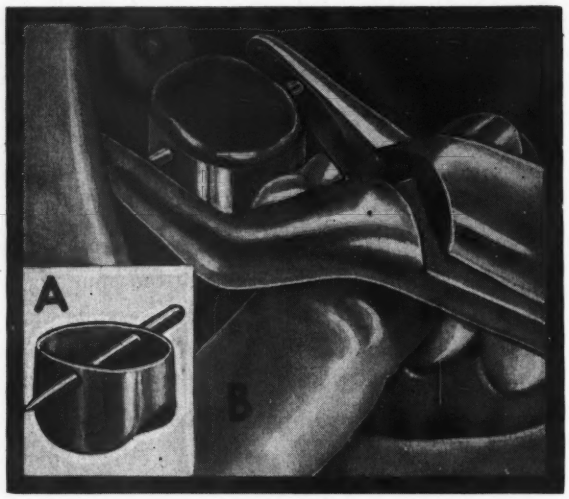

Fig. 2

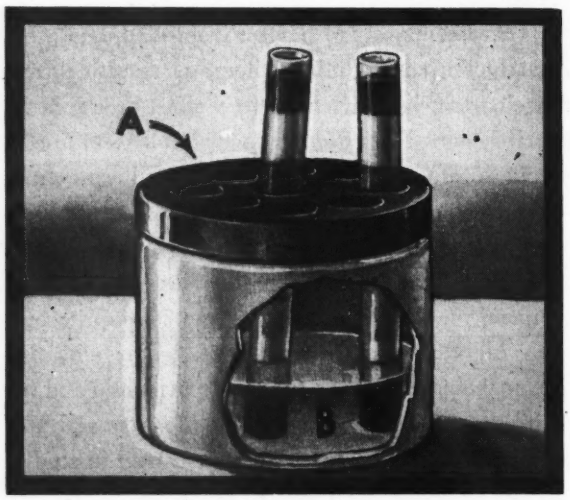

Fig. 3

Clinical and Laborato

Adapting Wax for a Three-Quarter Crown Preparation

Lieutenant James L. Wesner (DC) AUS, Atlantic City

Fig. 1—The wax is carried to the preparation in a matrix band, and (A) is carved roughly to the approximate shape. A piece of rubber dam is cut to be about 3 inches long and slightly wider than the length of the tooth. The rubber is moistened and carried to place around the wax pattern, being certain that the rubber extends below the gingival margin and above the incisal margin. (B) The two ends of the rubber dam are pulled taut and twisted with continual tension exerted outward and gingivally. A hot burnisher (C) is applied over the rubber dam. The wax will then flow under the pressure of the dam to produce a smooth pattern, and the excess wax (D) will be forced out at the incisal margin.

Removing a Band Impression From a Tooth Preparation

Abraham S. Fisch, D.D.S., Far Rockaway, New York

Fig. 2—Fit and festoon an appropriate copper band. (A) Drill two holes through the band, one on the buccal wall and another on the lingual wall, and pass a phonograph needle through these holes. Fill the band with impression material and press to position. (B) After the impression material is hardened, engage the ends of the projecting needle with the beaks of bayonet forceps. Use the forceps as a lever with the fulcrum at the fingers, covering the occlusal surfaces of the teeth mesial to the preparation. By this method the band impression can be removed without distortion.

A Container for Anesthetic Cartridges

P. M. Margand, L.D.S., R.A.F., Andover, England

Fig. 3—Select a glass or earthenware jar that has a metal lid. (A) Drill holes the size of anesthetic cartridges through the lid. (B) Pour enough antiseptic solution into the jar to cover the needle end of the cartridges. The ends of the cartridges that project from the container receive the plunger of the syringe. This method insures sterile cartridges that are ready for instant use.

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...UGGESTIONS . . . .

An Efficient Solder Holder

Harry D. Hoffman, D.D.S., St. Louis

Fig. 4—It is frequently difficult to pick up small bits of solder while concentrating on the work at hand. A simple and effective solder holder may be constructed as follows: (A) Cut the ends off four bobby pins at the first contact point from the open tips. (B) Secure the pins in a base of moldine, and build up the moldine to form a mold. Pour low-fusing metal into the moldine form. (C) When the metal is hardened, the heads of the bobby pins will be secure in the metal. Place the bits of solder in the beaks of the bobby pins, from which the solder can be removed easily when needed.

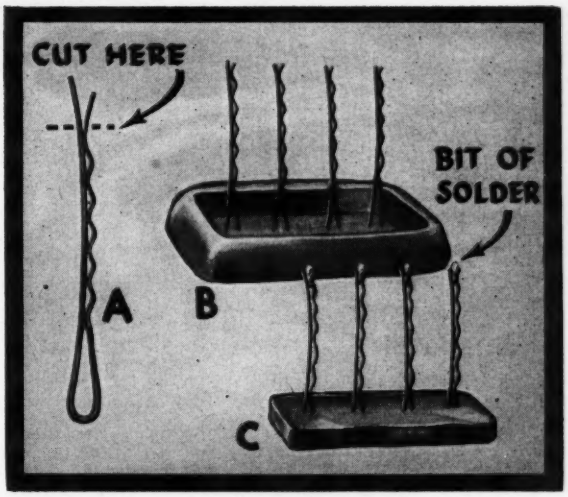


Fig. 4

A Simple Gauze Sponge for Maintaining Dryness

Lieutenant (jg) Elliot H. Josephson (DC) USNR, Bainbridge, Maryland

Fig. 5—Twist a 4-by-2 gauze sponge tight, and tie each end firmly with dental floss. Place the twisted sponge in the labial mucosal fold to maintain dryness during treatment. The sponge will be held in place by the upper lip. A twisted gauze sponge is less likely to be displaced than the ordinary cotton roll.

Fig. 5

An Aid in Boxing Impressions

Earl H. Crary, D.D.S., Cando, North Dakota

Fig. 6—(A) Tear an ordinary paper towel into two equal parts, and fold each part to make four thicknesses. Each folded piece of paper should be about 1½ inches wide. Press the folded paper down well and dip it into a pan of melted scrap laboratory wax. (B) Hold the folded paper by one end over the pan and "strip" it down with the thumb and forefinger. It is best to vaseline the fingers before "stripping." The pieces of wax-impregnated paper will have sufficient length for any cast. When boxing an impression, warm the waxed paper slightly and conform it to the impression; then secure it to place with a doubled rubber band.

(*Continued on page 256*)

Fig. 6

Fig. 7

A Helpful Suggestion in Mandibular Injection

Martin H. Berman, D.D.S., Floral Park, New York

Fig. 7—Frequently in making a mandibular injection, the tongue is an annoyance to the operator because it obscures the site of injection. Clear vision of the site may be obtained as follows: When the area of injection is swabbed with iodine prior to the insertion of the needle, swab the side of the tongue (A) as well. The tongue reacts to the iodine by instantaneous reflex with withdrawal, leaving the operator an unobstructed view of the field of injection.

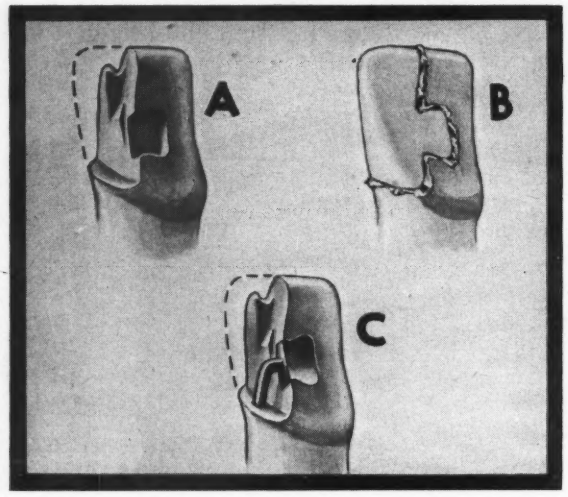


Fig. 8

Increasing the Retention for Incisal Angle Acrylic Restorations

Fred W. Allen, D.M.D., Boston

Fig. 8—(A) The tooth is prepared with a lingual dovetail and a reverse curve at the incisal. (B) Platinum foil, .0005-gauge, is burnished to a die. After the wax is properly carved and contoured, the foil is removed and the restoration finished. (C) In the case of a short, stubby tooth, retention is secured by casting the dovetail in hard gold with a loop pin retention extended to the gingival.

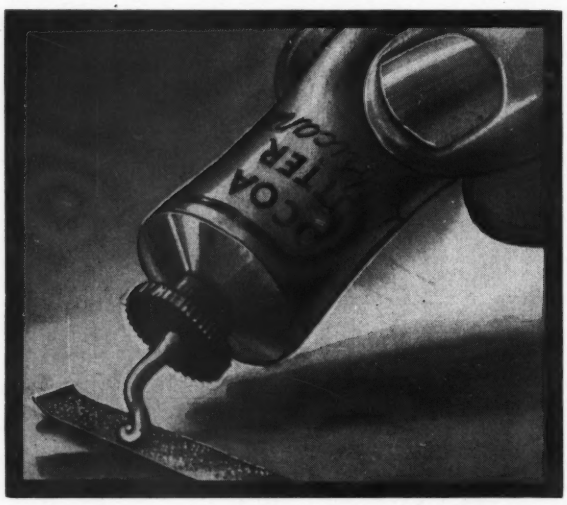


Fig. 9

A Time and Material Saver

C. Bruce Suter, D.D.S., Rochester, New York

Fig. 9—A small hole drilled through the cap of a tube of cocoa butter makes it unnecessary to unscrew the cap each time the lubricant is used. This method likewise saves material inasmuch as more lubricant than is needed usually is expressed from the tube if the cap is removed.

...UGGESTIONS (*Continued from page 255*)

Preventing Modeling Compound from Sticking to the Pan

Edward J. Berens, D.D.S., Hammond, Indiana

Fig. 10—(A) Engage two or three thicknesses of cheesecloth in metal embroidery hoops, and place the modeling compound on the cheesecloth. (B) Place this in a pan of water, and heat. This technique prevents the modeling compound from sticking to the pan when it is heated.

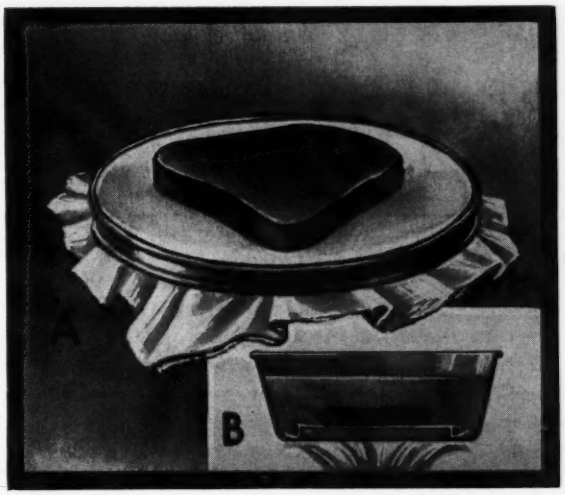


Fig. 10

Sealing the Gingival Floor of Cavity Preparations in Anterior Teeth

Harry Maeth, D.D.S., Mosinee, Wisconsin

Fig. 11—The gingival margin of silicate restorations in anterior teeth is a vulnerable area. To protect this area, gold foil is used to cover the gingival floor of the cavity preparation, and the outer margin is beveled to ensure sealing of the gingival floor with the gold foil. The gold foil acts as a lining over which the silicate restoration can be placed.

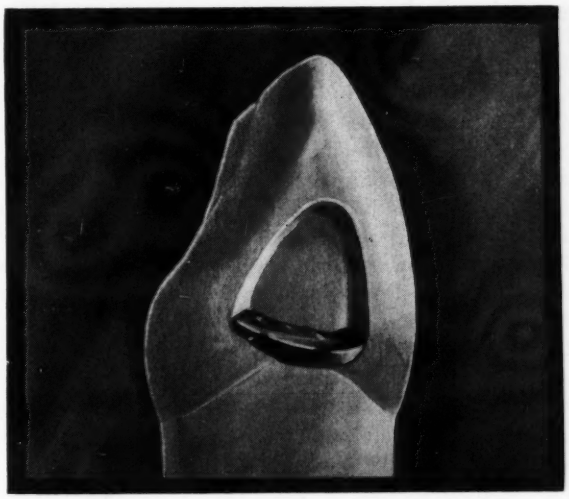


Fig. 11

Passing a Ligature Between Teeth With Tight Contact Points

S. I. Russell, D.D.S., Los Angeles

Fig. 12—(A) Pass the looped end of a wire needle threader through the interproximal space below the contact point. Pass one end of the ligature through the wire loop. (B) Withdraw the looped wire back through the interproximal space. By this method the ligature can be passed through the contact point without force, which would tear the floss, and without injury to the interproximal gingiva.

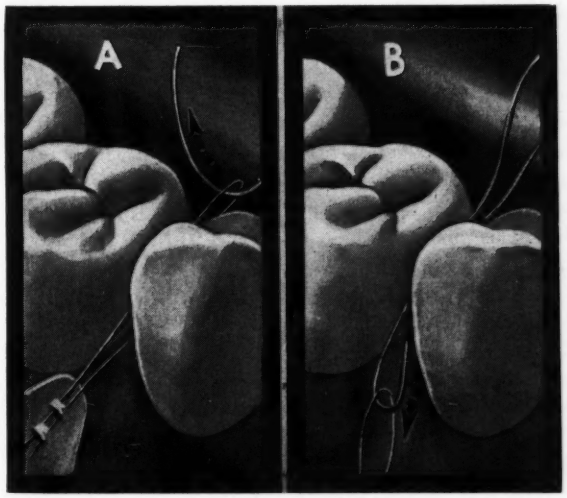


Fig. 12

Operative Care for Deciduous Teeth

ELSIE GERLACH, D.D.S., Chicago

Caries on the different surfaces of deciduous teeth require individual techniques of cavity preparation and restoration. These techniques are presented.

Occlusal Caries

Deep Fissures—Occlusal caries in deep fissures is shown in A of Figure 1. The overhanging enamel is broken down with chisels and hatchets, and the caries is removed with spoon-shaped excavators. The fissure bur is reserved for straightening and extending the walls for caries prevention (B). A cement base is indicated if the caries is deep, and the restoration is made in amalgam.

Shallow Pits—Occlusal caries in shallow pits is shown in A of Figure 2. Cavity preparation is made by entering the pits with a small round bur, following this with a fissure bur to widen the pit and a small inverted cone to undercut the walls slightly. The restoration (B) is made in amalgam.

Proximal Caries

Gingival—Proximal caries at the gingival line (A in Fig. 3) is not revealed on the occlusal surface (B) but can be seen in a bitewing roentgenogram (C). Access to the caries is gained by cutting an occlusoproximal cavity into the distal of the first deciduous molar. Then a "spot" amalgam restoration is placed on the mesioproximal surface of the second deciduous molar (E). A convenient Condit Tee matrix band is placed around the first deciduous molar and the cavity is restored in amalgam (D). The occlusal surfaces after restoration are shown in F and G.

First and Second Molars—Proximal caries on deciduous first and second molars, undermining the marginal ridges, is shown in A and B of Figure 4. Proximal occlusal preparations are cut on both teeth, and a matrix is fitted around the second deciduous molar. The cavity on the first deciduous molar is filled with temporary stopping before restoring the second molar (C); this gives support to the matrix while the amalgam restoration is being placed in the second molar (C). The temporary filling is left in the first molar until the next visit. The mesial surface of the second molar should be polished carefully before placing the amalgam restoration in the first molar (D). This will assure the first bicuspid a smooth wall against which to erupt

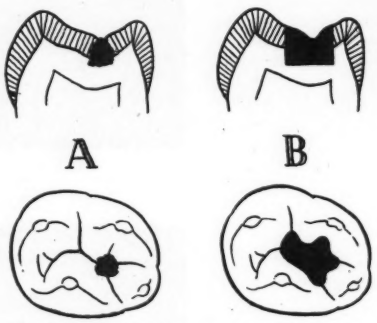


Fig. 1—(A) Occlusal caries in deep fissures. (B) Cavity walls straightened and extended for caries prevention.

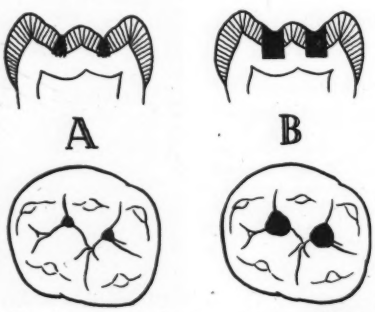
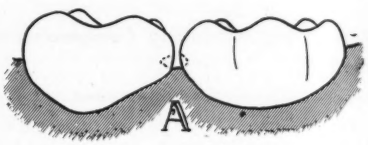
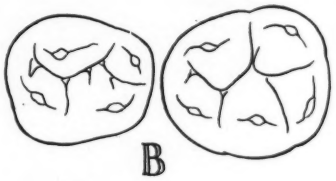
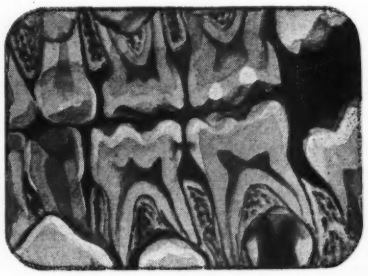
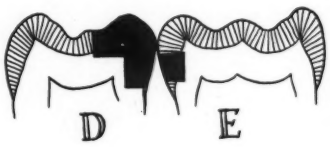


Fig. 2—(A) Occlusal caries in shallow pits. (B) Restoration in amalgam.









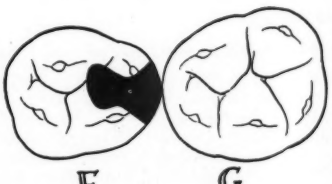


Fig. 3—(A) Proximal caries at gingival line. (B) Occlusal surfaces. (C) Bitewing roentgenogram. (D and E) Amalgam restorations. (F and G) Occlusal surfaces after restoration.

when the first molar is exfoliated.

Not Involving Pulp—Extensive caries not involving the pulp but undermining the cusps and marginal ridges is shown in A and B of Figure 5. The overhanging enamel is broken down with chisels, and the caries is removed with excavators and burs.

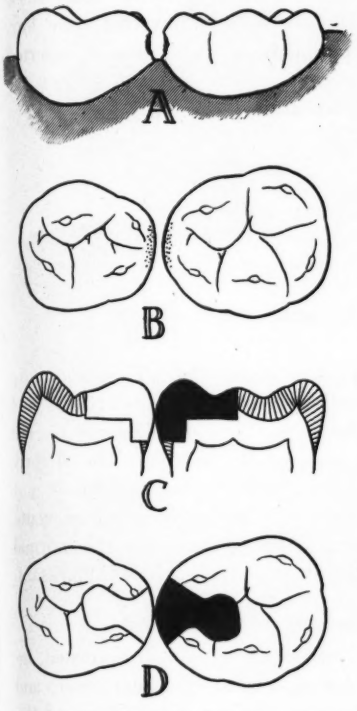


Fig. 4—(A and B) Proximal caries undermining marginal ridges. (C and D) Temporary filling in first molar and amalgam restoration in second molar.

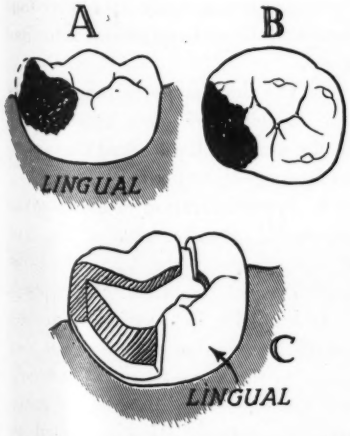


Fig. 5—(A and B) Extensive caries not involving pulp but undermining cusps and marginal ridges. (C) Inlay preparation with extension to buccal wall for retention.

Cement is used to establish a base. An extension is cut to the buccal wall for retention using a bur or stone, and the walls are straightened with stones and prepared for an inlay (C). A direct or indirect wax impression may be made, and a casting is made of gold or silver alloy. Before cementing the inlay, care should be taken to have no high spots. Because the occlusion of a child is changing constantly during growth and development, the restorations should be checked carefully with articulating paper at each subsequent visit so that all high spots can be removed. This is especially true with class II amalgam restorations in which fracture is likely to occur.

Incisal—A in Figure 6 shows proximal caries on incisors in young children. The cavities are prepared for plastic restorations about 1½ millimeters in depth. These are undercut slightly with an inverted cone bur for retention (B).

A in Figure 7 shows proximal caries on incisors of children aged 6 to 8. The proximal surfaces are disced to form wedge-shaped spaces between the teeth (B), and at an angle to save the labial surfaces (C). These surfaces may be treated with silver nitrate but this will permanently discolor the teeth and is, therefore, objectionable.

Cuspids—Access to proximal caries on deciduous cuspids (A in Fig. 8) is gained by cutting a lingual lock (B). An amalgam restoration is more durable than a plastic restoration and if kept polished will not be objectionable in appearance.

Caries on Other Surfaces

Gingival caries on deciduous teeth is shown in A of Figures 9 and 10.

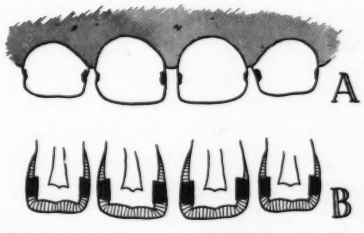


Fig. 6—(A) Proximal incisal caries. (B) Cavity preparations undercut slightly for retention of plastic restorations.

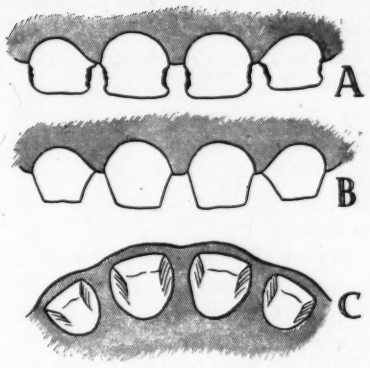


Fig. 7—(A) Proximal incisal caries. (B and C) Proximal surfaces disced to form wedge-shaped spaces between teeth and at an angle to save labial surfaces.

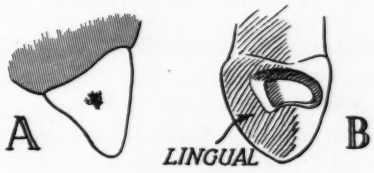


Fig. 8—(A) Proximal caries on cuspids. (B) Lingual lock to gain access to caries.

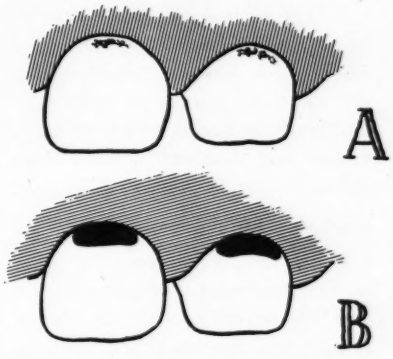


Fig. 9—(A) Gingival caries. (B) Amalgam restorations.

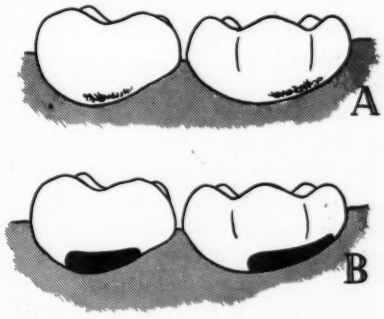


Fig. 10—(A) Gingival caries. (B) Amalgam restorations.

The cavities are prepared to include the carious area and into immune tissue to a depth of about 1½ millimeters. These cavities may be undercut with an inverted cone bur and restored in amalgam (B in Figs. 9 and 10). Copper amalgam may be used on the lingual gingival thirds of molars.

Figure 11 shows lingual caries in fissures (A), lingual caries in the cusp of Caribelli (B), and buccal spot caries (C). These are exceedingly important places to watch for caries and to restore as soon as the explorer point catches. If they are left unrestored, they often become large and undermine the cusps, thus making large restorations necessary. A small round bur will open these spots quickly; and if undermined slightly with an inverted cone bur, an amalgam restoration is inserted quickly.

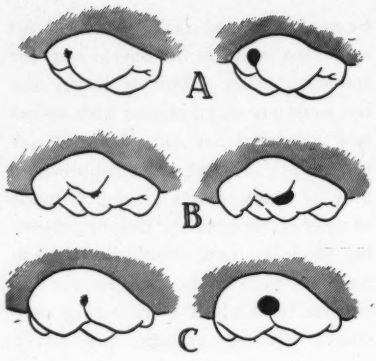


Fig. 11

Fig. 11—*(A) Lingual caries in fissures. (B) Lingual caries in cusp of Caribelli. (C) Buccal spot caries.*

808 *South Wood Street.*

Penicillin Pastilles in the Treatment of Acute Ulcerative Gingivostomatitis

ALEXANDER B. MacGREGOR, M.A., M.D., L.D.S., and DAVID A. LONG, B.S., M.B.

Causative Factors

The two main factors in the causation of acute ulcerative gingivostomatitis (Vincent's type) are:

1. A predisposition to attack caused by a lack of resistance in the gingival tissue.

2. The invasion of the tissues either by some unidentified organism or virus which provides conditions for the excessive growth of spirochetes and fusiform bacilli, or by the spirochetes and fusiform bacilli themselves.

Methods of Treatment

Endeavors to increase the resistance of the tissues by vitamin therapy have not proved particularly encouraging. Local treatment, both mechanical and chemical, not infrequently fails, involves a good deal of time spent by patient and operator, and entails damage to the gingival tissues following the application of caustic solutions.

It has been known for some time that the majority of oral anaerobic micro-organisms are sensitive to penicillin. It was decided, therefore, to try the drug in a series of ulcerative stomatitis cases, although it was not then known that the organisms responsible for the disease were sensitive. It was shown experimentally that the penicillin remained active in the pastille; that an effective concentration could be maintained in the mouth; and that the pastilles would keep for at least three months without deterioration of efficiency. The standard dose adopted was 500 units of penicillin in each pastille, though in many cases we successfully used pastilles containing only 250 units.

Technique

1. All patients treated showed inflammation of the gingival tissues, ulceration of varying degrees, and the presence of large numbers of spirochetes and fusiform bacilli in smears taken from the ulcerated areas. They were seen daily for clinical and bacteriologic control.

2. Each patient was instructed to place a pastille in the buccal sulcus, to leave it there until it had dissolved without chewing or sucking, and then to replace it with another. The time taken for the pastille to dissolve varied in different patients, and in general tended to be shorter in the earlier and more acute stages of the infection owing to the greater degree of salivation. The average, however, was about three-fourths of an hour.

3. Particular instructions were given that a pastille should be inserted the last thing at night and that it should be replaced should the patient wake. Great attention was paid to seeing that the patient fully understood the instructions and the importance of regularity in the taking of the pastilles. The slightly bitter taste of the pastilles is not noticed in the presence of an acute oral infection, and in the normal mouth it is not actively unpleasant.

Results of Treatment

Seventy-five cases were treated, including one of glandular fever, and four in which a severe form of the disease was subsequent to a bismuth stomatitis while the patients were under treatment for syphilis.

Clinical Response—1. All patients became asymptomatic in twenty-four hours, and the characteristic fetor had gone.

2. The sloughs on the ragged edges and the signs of acute inflammation in the gingival tissues had disappeared in forty-eight hours.

3. Epithelialization of the gingivae proceeded rapidly, and within five days the improvement in all cases was such that the treatment was stopped.

4. In order to control the results no treatment other than pastilles was given to the patients and no attempt was made to clean the gingival pockets. The patients were inspected at fortnightly intervals after the cessation of treatment, and no relapse

(*Continued on page* 262)

She says she brushed her teeth an hour ago. The dentist disagrees, saying: "You *think* you did. But there is a great difference between merely going through the motions and *scientific* brushing."

To make scientific brushing easy, many dentists recommend the D. D. Tooth Brush. For its ingenious *twisted-handle* facilitates proper placement of the brush on the teeth . . . almost automatically insures desirable *rotary motion.* Leading periodontists acclaim the *non-skid thumb rest* which permits easy control of the compact brushhead for gentle, non-traumatizing gum massage.

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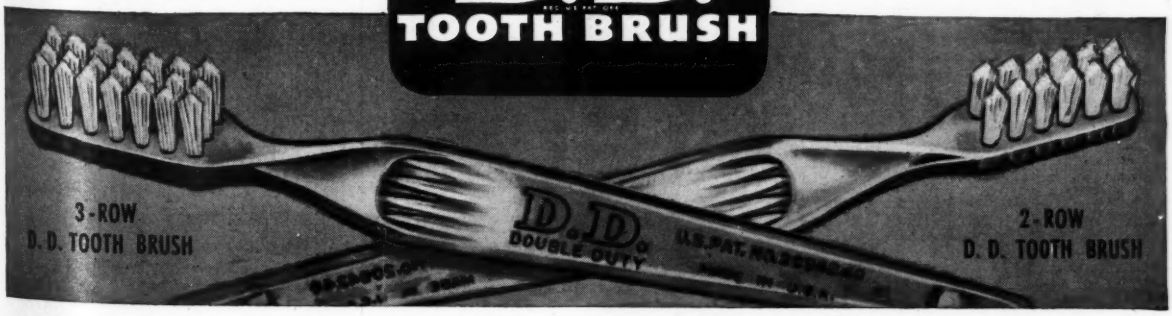

(*Continued from page* 260)

was seen in the first five months of the investigation.

Bacteriologic Response—1. Twenty-four hours after treatment had started it was found that the spirochetes were absent, and the fusiform bacilli were much reduced.

2. In forty-eight hours the fusiform bacilli were further markedly reduced and in many cases absent.

3. In seventy-two hours both spirochetes and fusiform bacilli were entirely absent.

4. Films made at weekly and fortnightly intervals after cessation of the treatment showed no evidence of recurrence in any patient.

5. In order to be certain that the clinical and bacteriologic improvement was due to penicillin and not to salivation or other mechanical factors, one patient with a severe infection was given pastilles made of gelatin and 0.1 per cent Nipagin (preservative) without penicillin. There was no clinical nor bacteriologic improvement after forty-eight hours. Treatment with penicillin pastilles was then started. Films taken twenty-four hours later showed no spirochetes nor fusiform bacilli.

—From *The British Dental Journal*, 78:33 (January 19) 1945.

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FIRST to perfect a solution to break down surface tension, DePendable for better casting results . . .

FIRST to perfect a liquid for quicker, easier foiling of dentures, a DePendable replacement for tin-foil . . .

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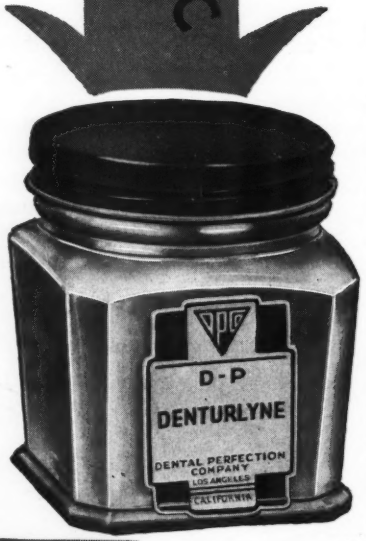

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Contra-Angles

Science on Sunday . . .

Lurid Sunday supplement writers have a field day when they approach most scientific subjects. The science editor of *The American Weekly* has turned out a sensational sizzler under the title CLIMB AWAY FROM THAT TOOTHACHE. One picture in the article shows a dentist doing something to a child. The explanatory legend is: "Dentists in the Future Won't be Saying, 'This Won't Hurt—Much' as Low Air Pressure Chambers Forecast Next Year's Toothache." Another picture shows aviators in a decompression chamber, with the promise, "Decompression Chamber Tests on Aviators Confirmed the Low Pressure Theory; Now Post-War Dentists Expect to Adopt the Technique."

All this sensational writing comes from a perfectly good scientific report on aviation dentistry written by Orban and Ritchey, which is in agreement with the writings of other earlier writers on aviation dentistry—Willhelmy, Summerville, and Mullen. All these pioneers in aviation dentistry have observed that with aerial ascent and reduced barometric pressure dental pain may develop. This is an interesting and practical observation, but it does not mean that the dental office of the future need be equipped with a decompression chamber to make dental diagnoses. It is stretching things a bit to say that a decompression chamber will "forecast" next year's toothache. With the methods at hand, bitewing roentgenograms and frequent clinical observations, we can do a pretty good job of anticipating next year's toothache.

We like to see good publicity about dentistry. Overstatement and

misemphasis are not good. A model of effective publicity for the profession is the excellent article, Is TOOTH DECAY ON THE WAY OUT? which appeared in the April issue of *Better Homes and Gardens*. This article represents careful thought, consultation with experts, proper emphasis on facts, and straightforward writing.

Picture of the Year . . .

Dental society members throughout the country will be given a chance to see the new sound picture produced by the Membership Committee of the American Dental Association. This picture tells the story of American dentistry and of the functions of the American Dental Association.

It is a job done with a professional touch. It is well directed and well acted. It is neither too long nor too detailed. It shows our evolution in the last hundred years from the crudities of the steel chisel and the barber chair to the refined methods of the Bureau of Standards. It is a job well done.

The Pause . . .

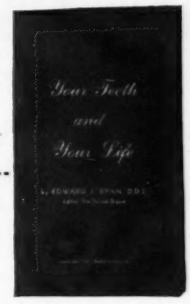
In Buffalo is a dental colleague stricken in the days of his vigorous youth with a serious neurologic disease. He is now forty. He has a brave, strong spirit that neither adversity nor ill health can crush. From his home in Buffalo he carries on a little business selling magazine subscriptions.

In early April in company with two Buffalo dentists, John A. Guenther and J. Nelson Healy, I visited this lad between sessions of the meeting of the New York State Eighth District Dental Society. We, in robust health, were going to pay a call on the sick, hopeful to give some cheer. But we, the visitors, were the receivers of the gift. We came away from the visit uplifted in spirit, for we saw a young man crippled but not beaten; a lad stricken in his prime who complained not, nor did he whine about his misfortunes. He talked about all the boys in military service to whom he writes regularly. He wants to be a giver, not a receiver. He described

ETHICAL PATIENT EDUCATION MATERIAL

Dentists everywhere are using this pamphlet in their patient education programs. Here are five of the ways it can be used: (1) As a monthly statement enclosure; (2) Reception room use; (3) Patient distribution upon dismissal; (4) Enclosure with patient recall cards; (5) Dental Societies and Parent-Teacher Association groups.

200,000 copies sold to date. Prices are low—25 for $1.00; 100 for $3.00. Use the coupon.



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In your ORAL HYGIENE this month

A Dentist's Adventures in the Yukon

Advised to take a vacation, Doctor Uno B. Johnson decided that the thing to do was to stop being a dentist and begin being a truck driver—up in the Northwest Territory. Fate stepped in with a few changes in the proposed plans, and the whole story makes fascinating reading. You'll find it on page 802 of the May issue of Oral Hygiene.

★ ★ ★

"What Do THEY Think of Us?" is an article which merits a lot of consideration. The author, Doctor I. Franklin Miller, suggests that the American Dental Association sponsor a public opinion poll, and make the results available to the dental profession for study. You won't want to miss this article on page 806.

★ ★ ★

"Washington Conference Discusses Dental Care for Children" (page 810), "Are Children Worth Saving?" (page 812), and the editorial, "We Have a Long Way to Go," all emphasize the importance of dental care for the children of our nation. Doctor C. F. Tuma, in the second article, reports that the Cleveland Dental Society found the public keenly interested in the Children's Dental Health Meeting which the society sponsored. Other cities might well follow Cleveland's lead as a step toward gaining the fullest cooperation of parents, teachers, schools, and the children themselves.

★ ★ ★

In the article, "Who Said 'Refresher Course'?," Captain William Ferderber brings up a well-founded objection to calling postwar courses for Service dentists "refresher courses"—says such designation tends to give dental patients the idea that returning service dentists are "rusty," or that they have failed to keep up with current dental practice. There's a lot to think about in his short article on page 814.

★ ★ ★

Doctor Andrew A. Rafferty, in his article, "Dentistry Must be Independent," says, "The logical conclusion would be that if the American Dental Association is able to make progress toward autonomy for the Dental Corps of the armed forces, it should then use its prestige and power to obtain legislation that will assure independence of action to dentistry and divorce any national administration policy from medicine." You will want to read the whole article on page 818.

One of the two dog teams used by Canol workers while on the winter road toward White Horse.

★ ★ ★

"The Training of Dental Technicians as Assistants," by Lt. Comdr. B. M. Hamilton (DC) USN (page 822), describes the methods of selecting and training personnel to assist Navy dentists. Lectures, examinations, and a great deal of practical training under experienced technicians, prepare the man or woman to be of maximum help to the dental officers.

★ ★ ★

"Navy Gives Course in Dental Prosthetics," by Lieutenant J. C. Brown (DC) USN (page 825), describes the care with which prosthetic technicians are trained for service in the Navy. The six-month course is thorough and comprehensive. Theory and practice give the students a fine basis for working in the Navy prosthetic laboratories.

★ ★ ★

Your assistant will be interested in the article on page 831, "Don't Ration Courtesy." It's a brief digest of a splendid paper by Katie McConnell, which was recently published in *The Dental Assistant*. You will probably want to read it too. It's full of good suggestions for saving dentists' and patients' time and temper.

his affliction as "the pause." He has faith that one day this "pause" will be over and that he will return to his work.

From time to time we put human interest items in this column. The generous response from readers is always satisfactory. This item about our brave colleague is printed because I know that dozens of dentists will want to place their magazine subscriptions with him. The cost is exactly the same as if the subscriber dealt directly with the publisher. The name and address are:

Doctor Russell C. Panzica
717 Seventh Street
Buffalo 13, New York.

The First Message . . .

In Des Moines to speak before the G. V. Black Club, Jim Prime, Claude Kennedy, Major Henderson, and I, listened in the Red Cross Room at Fort Des Moines to the first message of our new President. Rich was his speech in humility and sincerity; as rich in the intonations of the Middle West as the black soil of Iowa; rich in the goodness of the common people from whence he sprang. President Truman, in the words of King Solomon, prayed for an understanding heart to help him serve his Lord and his people.

When I returned to my hotel room I searched for and found the Gideon Bible and the passage from the Book of Kings. Solomon was given the wise and understanding heart for which he prayed "Because thou hast asked this thing, and hast not asked for thyself long life; neither hast asked riches for thyself, nor hast asked the life of thine enemies; but hast asked for thyself understanding to discern judgment."

It is the wish of all Americans that the prayer of President Truman will be answered.

Fireside Chat . . .

The greatest tribute any writer, be he unknown or famous, can pay to another is to say, "I wish *I* had written that." The greatest praise that any writer can receive is to have a reader say, "That's grand.

(*Continued on page* 269)

(*Continued from page* 264)

You said exactly what I think." My tributes and my praise go out to the unidentified writer in *The Des Moines Register* on April 17 who produced this magnificent piece, FIRESIDE CHAT:

"My Friends:

"I speak to you this time not from the White House but from beyond a house that is not white.

"I address you as my friends, for all of you are that now, as indeed you always were.

"You have been overgenerous in your appraisals of me since Thursday afternoon at 4:35. Perhaps some of you were less than generous in the years before then, when I, a fallible mortal, was your chosen leader through times that often bewildered me as well as you.

"That is of no consequence at all. Adulation which did not displease me before, though I tried not to be distorted by it, means nothing to me now, save as an unneeded further proof of the goodness and the kindness of the American people. That this goodness and kindness is not limited to the American people, but is inherent in people everywhere, white or yellow or brown or black, needing only fair conditions for expression, is a fact that I did believe and that now I know.

"Mankind is not a Beast. It is from the Beast that Man has risen. Mortal life is constant struggle, and the essence of the struggle is the good and the fair striving to be recognized, the bad and unfair endeavoring not to be recognized even by its own defenders. That is the great reality within every individual heart and mind, within every group of human hearts and minds.

"Long ago the great understanders comprehended this, and they have expressed it in many forms, of which the loftiest are the profound simplicities of religion.

"Right against wrong, justice against injustice, love against hate, God against Satan—that is always the conflict. Or knowledge against ignorance; it is the same. And nothing is changed save only garments

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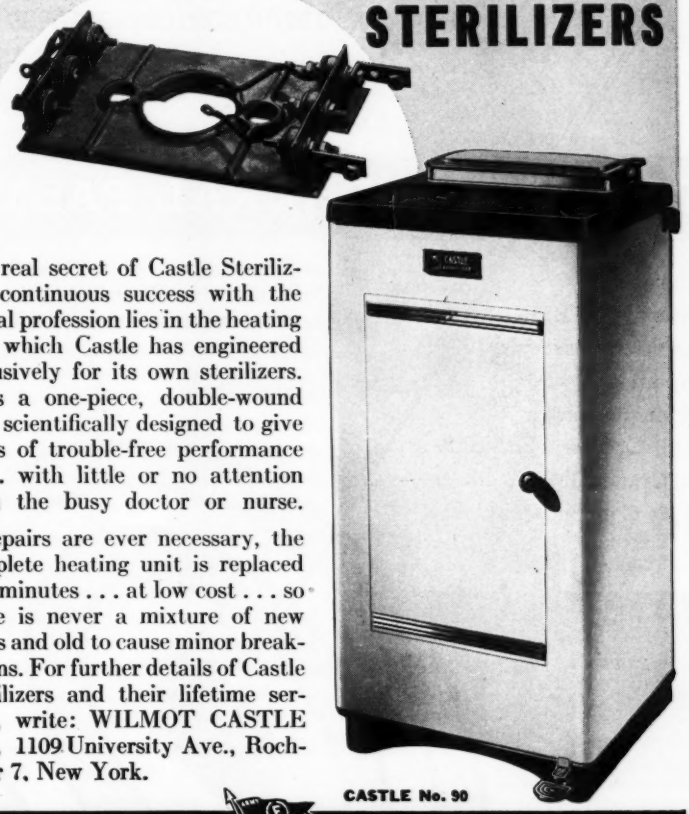

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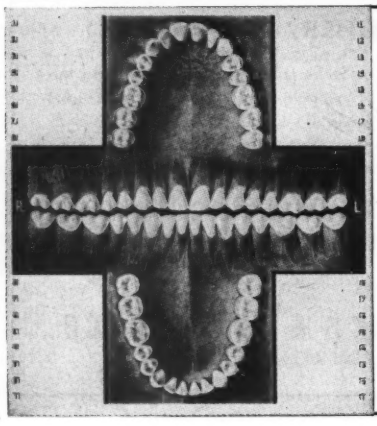

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when men conceive it as the ideals and process of democracy against the brutal fallacies of ancient tyranny.

"For democracy is not an end but a means; a means never perfectly employed, but aiming always and directly at the progressive achievement of justice between men and among peoples. And the ancient tyranny is an end, not a means, resting on the vicious concept of the overriding privilege of master race, master nation, master class, or just plain master.

* * *

"In the end, the good prevails. Bitter as may be the effort, humankind, inspired by the Purpose which created it, makes the good prevail. We, My Friends, have been its imperfect instruments, whatever our roles may have been. Together, all of us together, we have brought victory within sight in the bloody military struggle that is today's form of the conflict through which man marches toward his destiny. You will bring it into grasp.

"Go on thereafter, I entreat you, to victory as decisive in that other and even more significant form of the conflict that already has taken shape—to which we together, also imperfectly, have given promising shape. Go on to the establishment of Peace, guided by devotion to justice, willing to correct past injustice, aware that the task is not to create a perfect world at a stroke but to create the conditions and processes which will enable men better to understand what justice is and better to move toward it endlessly.

"Your task is to create through the earth a climate in which the good that is in man can prevail. And, My Friends, that requires, as it always has required, the devising and supporting of human institutions based broadly enough for the scope of the task. As my friend, Wendell Willkie, told you (and I digress to say that Wendell's arm is in mine) the world is one indeed. There is no alternative whatever to world-wide institutions, save the alternative of complete failure.

(*Continued on page* 272)

New Solutions for Old Problems

SYNTHETIC RUBBER

The rubber industry had been looking for something better than natural rubber years before the war added urgency to the search. The industry sought specialized rubbers which would do specialized jobs better than the natural product, and had produced synthetically special types which were oil-resistant; light resistant; heat resistant; etc.

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Dentistry had also been looking for a better local anesthetic than the conventional 2% solution — one which would produce a deeper, more profound *and more prolonged anesthesia without added vaso-constriction.* ▶ Five years ago Novocain-Pontocaine-Cobefrin gave the answer to *that* problem. Novocain-Pontocaine-Cobefrin is a standard Novocain 2% solution to which a minute quantity (0.15%) of Pontocaine has been added. The persistent action of this Pontocaine gives that deep, prolonged anesthesia dentistry sought for protracted surgical operations and many operative uses — and gives it *without increasing the vaso-constrictor content.*

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170 Varick Street, New York 13, N. Y.
Laboratories: Wheeling, W. Va. & Springville, N. Y.

(*Continued from page* 270)

"You have not been timid in war; be not timid in the building of Peace.

* * *

"I have made almost a refrain, My Friends, the fact of human fallibility. I have done that not at all casually, but for a purpose of great importance.

"Always there must be chosen leaders. Subject to your own ultimate control, you are in the hands of fallible ones. It happens now to be President Truman.

"I remind you merely that it is no different now than at all times it has been. You and I had got used to each other, and with all our superficial bickerings we were a team. You are now momentarily forgetting the fact that fallibility, the propensity for misjudgment, even the weaknesses of unrecognized vanity and personal ambition, are inherent in all men.

"There is, I remind you (and solemn as I mean to be, I smile) no Indispensable Man. There are among mortal leaders no gods, no demigods; none save as they are invented by a posterity grateful for the services of leaders who on the whole were wise, on the whole great, on the whole good.

"All that you have done and won in the past has been under the chosen leadership of fellow humans, the noblest of whom have been divinely inspired only as you are divinely inspired. These were fellow humans who reacted to great responsibility with great devotion, and who grew because they did.

"The virtue and power of the democratic idea, the reality that is the essence of it, is the fact that it not only needs no 'fuehrer' but repudiates the 'fuehrer principle.'

"Give to that good man, Harry Truman, the support that you gave to me, and you can be of good heart indeed.

* * *

"Here with me is the greatest host, all those who have gone before. And here we are all friends, Republicans and Democrats, conservatives and liberals, farmers and laborers and financiers, Negroes and Caucasians, Protestants and Catholics and Jews—all of us here are friends, equalized and possessed of that understanding that we sought so hard to capture and never quite captured before.

"Here with me are some whose names mean very much to you—George Washington, and Mr. Jefferson, and Abe Lincoln, especially.

"I have asked these three to give me messages to you.

"General Washington says, 'Be Steadfast.'

"Mr. Jefferson says, 'Be Free.'

"Abraham Lincoln says, 'Be Charitable.'

"And I say, 'Be Not Afraid.' "

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Traumatic Temporomandibular Articulation Syndrome

Lieutenant HOMER C. VAUGHAN (DC) USNR

Causes

Differences of barometric pressure due to changes of altitude affect the middle ear and mastoid mechanism, causing aero-otitis media. This varies in degree and intensity with each person, depending on the health of the nasopharyngeal area, the presence of middle ear infection, and the individual threshold of irritability.

During attacks of aero-otitis media the patient is instructed to chew gum vigorously, to move the mandible from side to side far beyond its normal range, to open and close the jaws

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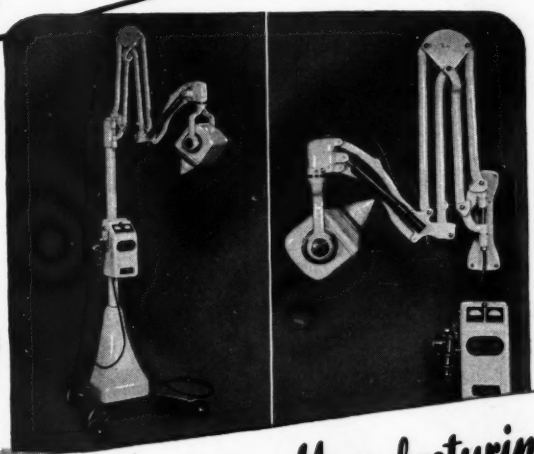

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frequently, and to bring the tongue forward and press it firmly against the roof of the mouth. This abnormal and unusual voluntary movement sometimes traumatizes the temporomandibular joint and adjacent structures in such a manner as to develop a recurring group of symptoms, a traumatic syndrome.

The predisposing cause of this traumatic syndrome has been primarily aero-otitis media; however, any strained and unusual excursions of the mandible can induce the symptoms. The articulation accustomed to the least amount of movement will usually exhibit the pain, for it is here that the strain of the excessive movement will create the greatest degree of trauma. When the extreme range is approximately the same for both condyles, which is seldom the case, a bilateral joint syndrome may become established, but in every instance one will manifest more intense pain than the other.

Symptoms

1. Usually there is pain over the temporomandibular articulation, developing into a "trigger area" about 1 centimeter in diameter, located approximately 1 centimeter above and in front of the superior border of the tragus.

2. The pain, usually unilateral, radiates superiorly, anteriorly, and inferiorly (not posteriorly) to include the eye, and the maxillary sinus, teeth, and musculature.

3. In some instances, as a later development, the patient complains of gastro-intestinal symptoms which are psychogenic in nature.

4. The pain is usually described as gnawing, fluctuating in intensity, and lasts from one to seven hours.

5. There is an absence of any ear disturbance or complaint.

6. This syndrome usually terminates in from three to seven days.

Treatment

1. Sedation, preferably with a barbiturate.

2. Restriction of movement of the mandible.

3. Limitation of the type of food ingested for three or four days to that most easily masticated.

4. When the acute episodes of pain are sufficiently severe, ½ cubic centimeter of 2 per cent procaine hydrochloride is slowly and carefully infiltrated over the "trigger area"

5. Because of associated psychogenic symptoms, care should be taken to keep the patient's mind off the condition and to emphasize the benign although painful nature of the syndrome.

—From *United States Naval Medical Bulletin*, 44:841 (April) 1945.

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Gingivitis Among Submarine Personnel

Comdr. O. E. VAN DER AUE (MC) USN, and
Lt. Comdr. V. R. CULLEN (DC) USNR

During a seven-month period the crews of seventeen submarines returning from war patrols were examined and classified according to their gingival health in order to discover possible incipient evidences of vitamin deficiency. This was also done as a control on a random group of the crew living aboard the submarine tender.

Class I: Gingiva that does not bleed and that has the appearance of normal healthy gingival tissue.

Class II: Gingiva that bleeds occasionally on toothbrushing but has the appearance of normal gingival tissue.

Class III: Gingiva that bleeds frequently on toothbrushing or when otherwise slightly irritated, and that objectively is moderately spongy, bleeding on slight traumatization.

Class IV: Vincent's infection or ulcerative gingivitis. (Diagnosis entirely by clinical findings; no smears were made.)

General Findings

1. The submarine crews, totaling 1243 men, who were grouped in classes II and III exceeded those of the crew of the tender, totaling 411, by a ratio of approximately 5 to 3.

2. Of the submarine crews, 1.4 per cent had clinical Vincent's gingivitis (class IV); no cases were found in the crew of the tender.

3. It was noted that in those groups in which there was poor dental hygiene, as manifested by food particles in crevices, abundant calculus, and caries, there was also the lowest percentage of class I gingivitis. One submarine, for example, had a large percentage of class IV cases. Almost all the crew of this vessel had filthy mouth conditions.

4. The majority of officers of all

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submarines had class I gingival conditions.

5. The characteristic signs and symptoms found in the various avitaminoses were all checked. In general, no systemic manifestations of nutritional deficiency were detected. A careful inquiry was made into the quality and adequacy of the menu from information furnished by the ships' cooks and by the individual crew members. The diet of the submarine personnel was not only adequate in all essential foods but of a higher quality than that obtained in most Navy surface vessels and at advance bases.

6. Common signs and symptoms found in the majority of members of the submarine crews were pallor from lack of sunshine, slight weight loss, occasional anorexia, and constipation. There were a few cases of follicular conjunctivitis and mild nervous tension and hyperirritability. These symptoms promptly disappeared during interpatrol rest periods, when sunshine, recreation, and athletic facilities were available.

Treatment and Response

1. The response of the gingival conditions to local therapy was dramatically prompt in most instances. Restorations, removal of calculus, and scaling and polishing of the teeth usually cleared up all cases of gingivitis in a few days.

2. The cases of Vincent's infection were all cleared up within three to five days. The only treatment was gross scaling, removal of necrotic tissue, frequent mouthwashes of 1:1000 solution of bichloride of mercury in hydrogen peroxide, and, finally, deep scaling of the calculus and a prophylactic treatment. The bichloride-hydrogen peroxide mouthwashes seemed to be more efficient than the usual mouthwashes and applications.

3. No adjuvant vitamin therapy was given.

Conclusions

The gingivitis in these instances was not due to the lowering of general and local immunity to the organisms by avitaminosis, but due solely to the lowering of local immu-

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(Illustration approximately one-half actual size)

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29. The Requirements of a Correct Restoration
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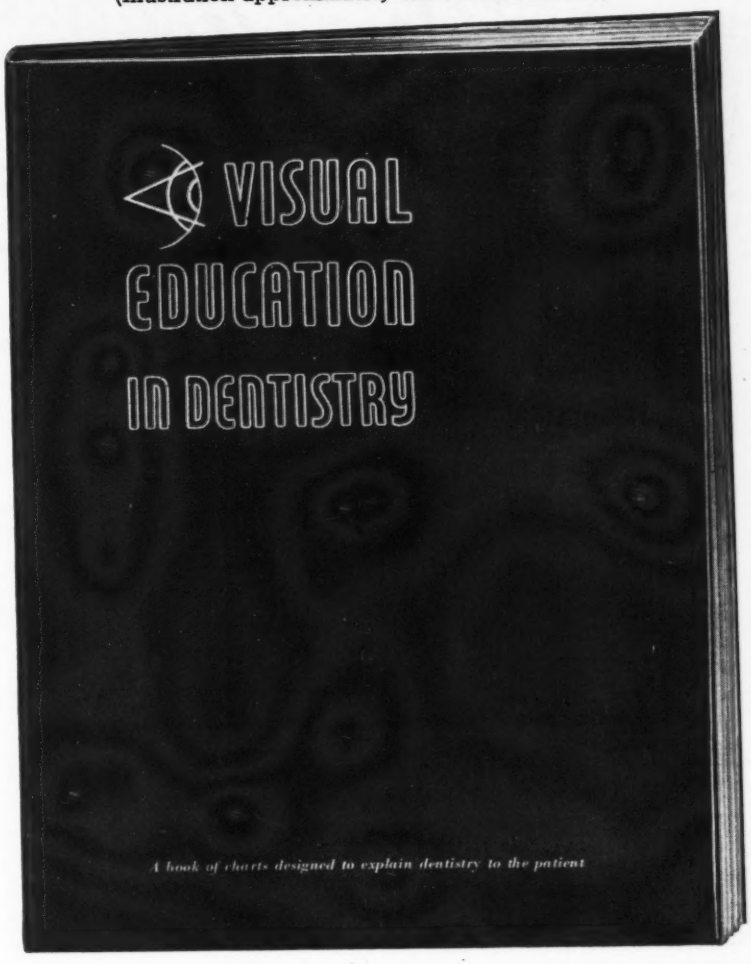

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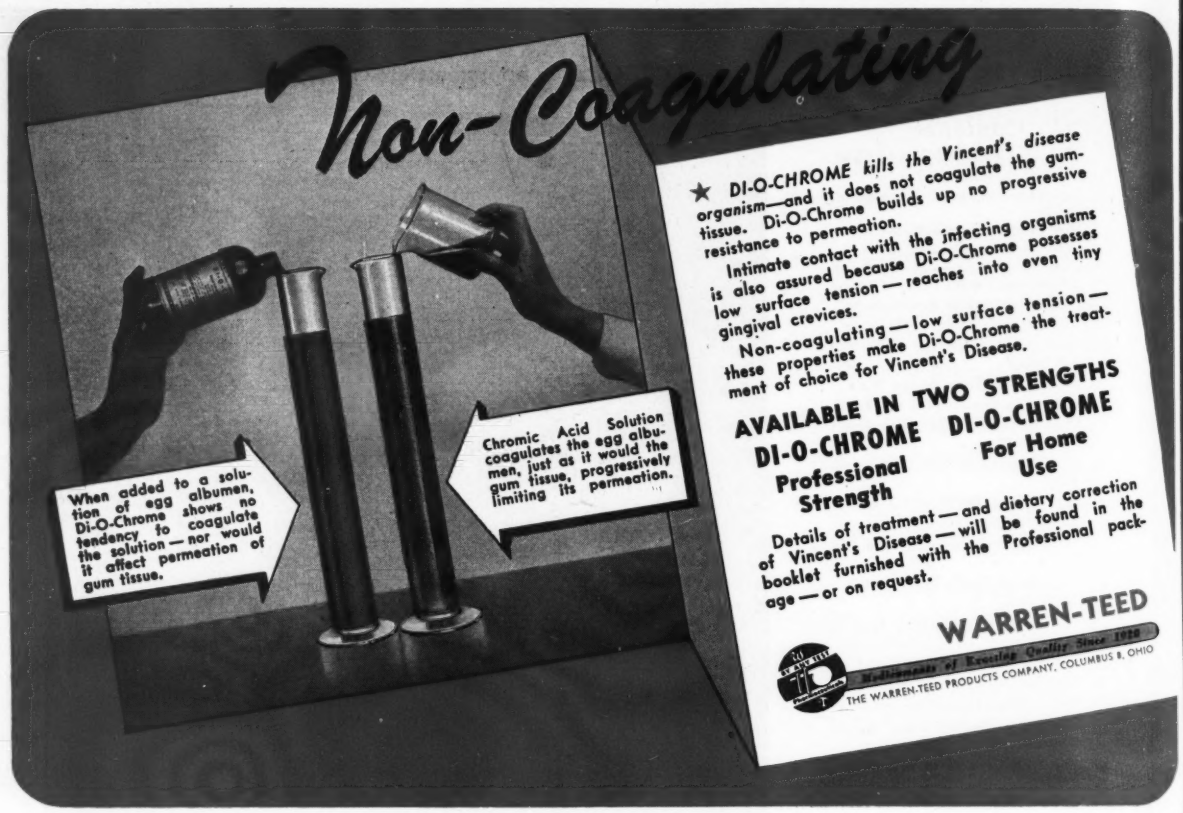
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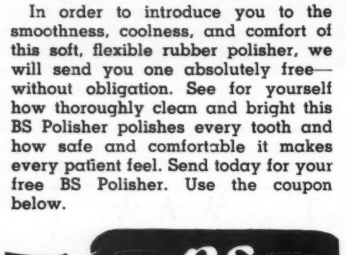

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nity by local trauma or irritation and poor oral hygiene.

The principal factor responsible for the poor oral hygiene found in many of these submarine personnel is their failure to use toothbrushes properly and often enough. A contributing factor is the interruption of the customary daily routine caused by frequent and irregular watch standing, and the lack of water. Excessive smoking may be a contributing factor.

—From *United States Naval Medical Bulletin*, 44:811-816 (April) 1945.

Sulfathiazole Paste in Vincent's Infection

Lieutenant F. J. ZODDA (DC) USNR

Method of Application

1. At the first visit the necrotic gingival crests and papillae are removed carefully with a pledget of cotton rolled about a toothpick dipped in 3 per cent hydrogen peroxide. A warm spray of the solution removes the necrotic tissue and debris in the interproximal spaces.

2. A thick aqueous paste of sulfathiazole and sodium perborate, in equal parts, is prepared. Its consistency should approximate that of paste used in a surgical pack following gingivectomy in periodontal treatment.

3. The paste is applied with a tongue depressor, buccally and lingually in the upper arch, and is left in place for five to eight minutes. This procedure is repeated in the lower arch, followed by a thorough rinsing of the mouth with warm 3 per cent hydrogen peroxide diluted to one-half its volume.

Post-Application Treatment

1. Brushing the teeth at home is

advised against until the inflammatory process subsides.

2. A mouthwash of 3 per cent hydrogen peroxide diluted to one-half volume is prescribed, to be used at least four or five times each day.

3. The patient should return for treatment every day for the first four days, then every other day.

4. When the infection is under control, the usual prophylactic treatment is instituted, such as scaling and curettage, balancing the occlusion, removal of gingival flaps surgically, or the removal of partly erupted or malposed third molars.

5. The patient is familiarized with maintaining the optimum tissue resistance by good oral hygiene.

—From *United States Naval Medical Bulletin*, 44:694 (April) 1945.

Maxillofacial Wounds in Forward Installations

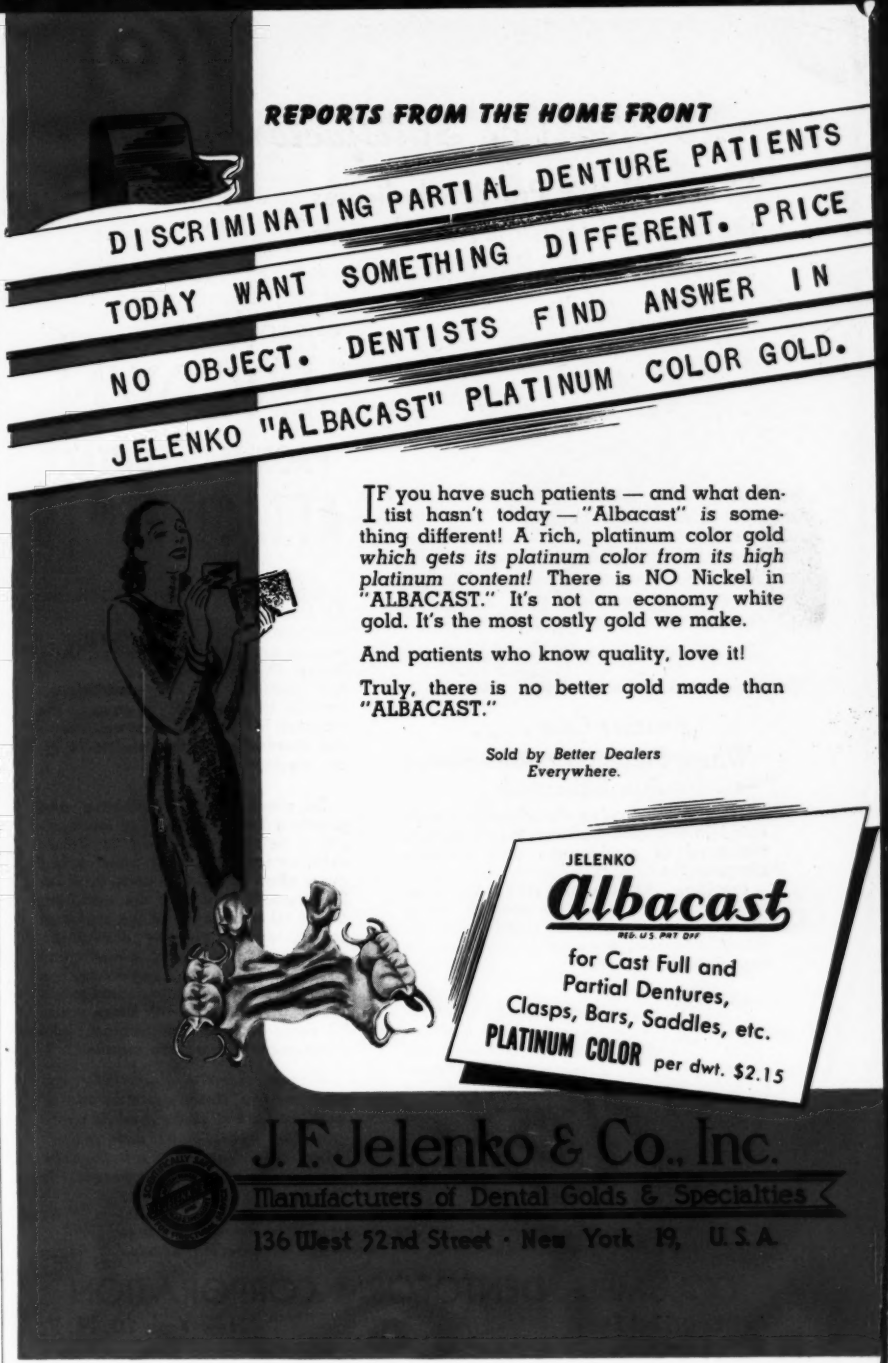
(*Continued from page* 246)

most instances, be satisfactorily covered by a simpler type of head appliance.

Several surgeons have voiced a desire for equipment for applying external pin skeletal fixation in forward hospitals. Few cases have been seen in which such appliances might have been used to advantage at this level. It has been the aim to encourage rapid evacuation of complicated cases to a general hospital where personnel and facilities are available to carry through completely the procedures that may be necessary. The excitement that has existed about what to do with the edentulous posterior fragments has been proved by experience to be unjustified. Most of the posterior fragment problems can be handled by much simpler mechanical measures than the external pin fixation method. As a matter of fact, the great majority of cases have only slight superior displacement of the posterior fragment, and no disability will result if the fragments are in such a position that union can take place.

It is felt that if equipment for external pin skeletal fixation had been supplied to the forward medical installations it would have been used up quickly on cases that might just as easily, or better, have been handled by simpler methods. The overall quality of work that has been done by the surgeon and dental officers in forward hospitals has been high, considering the great number of these officers through whose hands the patients pass. A good many of the cases arriving in general hospitals have satisfactory reduction and fixation that do not have to be altered.

—From News and Comments, *Bulletin of the U. S. Army Medical Department*, 86:2 (March) 1945.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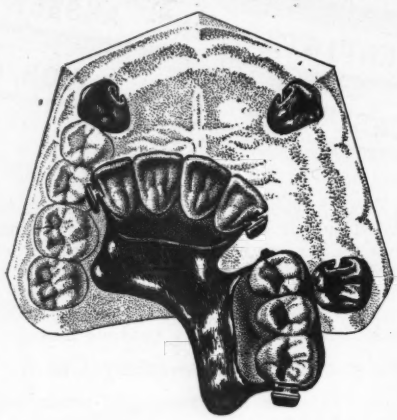
25 Years of Satisfactory Service

Where Better Practice Indicates the Use of Precision Attachments for Removable Restorations ★ ★



Specify

BROWN

PROXIMAL CONTACT

ATTACHMENTS

BROWN PRECISION ATTACHMENTS have been used successfully since 1920, when patents were granted to their inventor, Dr. I. Brown. This event followed by only a few years the publicity and impetus that Dr. Herman Chayes gave to the advance in removable restorations by the introduction of the precision type of attachment.

So simple, yet so effective and practical are the design and mechanical principles employed in Brown Attachments, that they have defied every effort to improve upon them for 25 years. Except with the addition, about 10 years ago, of the proximal contact type, to give the convenience of a built-in proximal contact, no change in design has been made. The sizes of the Brown Attachment made today are identical with those made 25 years ago—a comforting thought if replacement parts are required.

If you have a doubtful case, send us the study casts in occlusion, and we shall be glad to write you the opinion of our professional consultant as to whether the use of Precision Attachments is indicated.

Another Case . . . .
Where Precision Attachments Are Indicated

The use of Precision Attachments is indicated in this case because they eliminate the need of cumbersome and unsightly clasps on the cuspids.

Precision Attachments make this case more comfortable to the patient, more esthetic and—because of positive internal retention—unquestionably give longer life to the abutment teeth.

An alternate suggestion for the design of this case is a fixed anterior bridge and a Precision Attachment restoration posteriorly.

Send for 12 Design Charts of Attachment Cases with Descriptive and Technical Literature.

As makers of attachments, we are as anxious to discourage their use where contra-indicated as to encourage it where indicated.

COLUMBIA DENTOFORM CORPORATION

131 East 23rd Street — New York 10, N. Y.

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HELP

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SUGGESTIONS

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